CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
RMT-708

SERVICE MANUAL

Self Diagnosis
Supported model

Ver 1.0 2000. 01

AEP Model
East European Model
North European Model
Russian Model
CCD-TR417E/TR427E/TR617E/TR717E/
TR918E/TRV37E/TRV48E/TRV57E/
TRV67E/TRV87E
UK Model
CCD-TR417E/TR427E/TR717E/
TR918E/TRV37E/TRV48E/
TRV57E/TRV67E/TRV87E
E Model
Hong Kong Model
Australian Model
Chinese Model
CCD-TR317E/TRV47E/TRV57E/
TRV67E/TRV87E
Tourist Model
CCD-TRV47E/TRV57E/TRV67E/TRV87E

Handycam
Handycam Vision™
video8 XR
videoHi8
videoHi8 XR
InfoLITHIUM™ L SERIES

B201 MECHANISM

Photo : CCD-TRV87E

For MECHANISM ADJUSTMENT, refer to the "8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ " (9-973-801-11).

SPECIFICATIONS

Video camera recorder

System

Video recording system
2 rotary heads
Helical scanning FM system
Audio recording system
Rotary heads, FM system
Video signal
PAL colour, CCIR standards
Usable cassette
8mm video format cassette
CCD-TR317E/TR417E/TR427E/
TR617E/TRV37E/TRV47E/
TRV48E/TRV57E:
Standard 8
CCD-TR717E/TR918E/TRV67E/
TRV87E: Hi8 or standard 8
Recording/playback time (using 90 min. cassette)
SP mode: 1 hour and 30 minutes
LP mode: 3 hours
Fastforward/rewind time (using 90 min. cassette)
Approx. 5 min.
Viewfinder
Electric viewfinder (monochrome)
Image device
CCD-TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E:
1/6 inch CCD (Charge Coupled Device)
CCD-TR617E/TR717E/TR918E/
TRV57E/TRV67E/TRV87E:
1/4 inch CCD (Charge Coupled Device)
CCD-TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E:
Approx. 320,000 pixels
(Effective: Approx. 290,000 pixels)
CCD-TR617E/TR717E/TRV57E/
TRV67E:
Approx. 380,000 pixels
(Effective: Approx. 230,000 pixels)
CCD-TR918E/TRV87E:
Approx. 570,000 pixels
(Effective: Approx. 360,000 pixels)
Lens
Combined power zoom lens
Filter diameter 37 mm (1 7/16 in.)
CCD-TR317E/TRV47E:
20× (Optical), 200× (Digital)
CCD-TRV57E: E, HK, AUS, CN, JE/
TRV67E: E, HK, AUS, CN, JE/
TRV87E: E, HK, AUS, CN, JE:
20× (Optical), 360× (Digital)
CCD-TR417E/TRV37E:
20× (Optical), 40×*(Digital)
CCD-TR427E/TR617E/TR717E/
TR918E/TRV48E/TRV57E: AEP, UK, EE, NE, RU/TRV67E: AEP, UK, EE, NE, RU/TRV87E: AEP, UK, EE, NE, RU:
20× (Optical), 80×**(Digital)
* 240× in some areas
** 360× in some areas
Focal length
3.6 - 72 mm (5/32 - 2 7/8 in.)
When converted to a 35 mm still camera
CCD-TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E:
51.8 - 1036 mm (2 - 40 6/8 in.)
CCD-TR617E/TR717E/TR918E/
TRV57E/TRV67E/TRV87E:
41 - 820 mm (1 5/8 - 32 3/8 in.)
Colour temperature
Auto
Minimum illumination
CCD-TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E:
1 lux (F 1.4)
CCD-TR617E/TR717E/TRV57E/
TRV67E:
0.3 lux (F 1.4)
CCD-TR918E:
0.7 lux (F 1.4)
CCD-TRV87E:
0.6 lux (F 1.4)
0 lux (in the NightShot mode)***
*** Objects unable to be seen due to the dark can be shot with infrared lighting.

Input/output connectors

S video input (CCD-TRV87E: E, HK, AUS, CN, JE only)/ output (CCD-TR717E/TR918E/ TRV67E/TRV87E only)
4-pin mini DIN
Luminance signal: 1 Vp-p, 75 ohms, unbalanced
Chrominance signal: 0.3 Vp-p, 75 ohms, unbalanced
Video output
Phono jack, 1 Vp-p, 75 ohms, unbalanced
Audio input (CCD-TRV87E: E, HK, AUS, CN, JE only)/output
CCD-TR317E/TR417E/TR427E/
TR617E/TR717E/TRV37E/TRV47E/
TRV48E/TRV57E/TRV67E:
Monaural, phone jack, 327 mV
CCD-TR918E/TRV87E:
Phono jacks (2: stereo L and R)
327 mV, (at output impedance 47 kilohms) impedance less than 2.2 kilohms
RFU DC OUT
Special minijack, DC 5V

— Continued on next page —

8 VIDEO CAMERA RECORDER
CCD-TR317E/TR417E/TR427E/TR617E/
TRV37E/TRV47E/TRV48E/TRV57E

Hi8 VIDEO CAMERA RECORDER
CCD-TR717E/TR918E/TRV67E/TRV87E

MICROFILM

SONY®

Headphone jack (CCD-TRV87E only)
Stereo minijack (ø 3.5 mm)
Earphone jack (CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E only)
Monaural minijack (ø 3.5 mm)
LANC control jack
Stereo mini-minijack (ø 2.5 mm)
MIC jack
CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E:
Monaural minijack (ø 3.5 mm)
CCD-TR918E/TRV87E:
Stereo minijack (ø 3.5 mm)

LCD screen

Picture
2.5 inches measured diagonally
50.3 × 37.4 mm (2 × 1 1/2 in.)
Total dot number
61,600 (280 × 220)

General

Power requirements
7.2 V (battery pack)
8.4 V (AC power adaptor)
Average power consumption (when using the battery pack)
During camera recording using
CCD-TR317E/TR417E/TR427E/TR617E/TR717E: 2.3 W
CCD-TR918E: 2.4 W
LCD
CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E: 2.7 W
CCD-TRV87E: 2.8 W
Viewfinder
CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E: 2.3 W
CCD-TRV87E: 2.4 W
Operating temperature
0 °C to 40 °C (32 °F to 104 °F)
Storage temperature
–20 °C to +60 °C (–4 °F to +140 °F)
Dimensions (approx.)
102 × 106 × 212 mm
(4 1/8 × 4 1/4 × 8 3/8 in.) (w/h/d)
Mass (approx.)
CCD-TR317E:
740 g (1 lb 10 oz)
CCD-TR417E/TR427E:
750 g (1 lb 10 oz)
CCD-TR617E/TR717E/TR918E:
770 g (1 lb 11 oz)
CCD-TRV37E/TRV48E:
840 g (1 lb 13 oz)
CCD-TRV57E/TRV67E/TRV87E:
860 g (1 lb 14 oz)
excluding the battery pack, lithium battery, cassette and shoulder strap
CCD-TR317E:
880 g (1 lb 15 oz)
CCD-TR417E/TR427E:
890 g (1 lb 15 oz)
CCD-TR617E/TR717E/TR918E:
910 g (2 lb)
CCD-TRV47E:
970 g (2 lb)
CCD-TRV37E/TRV48E:
980 g (2 lb 2 oz)
CCD-TRV57E/TRV67E/TRV87E:
1.0 kg (2 lb 3 oz)
including the battery pack NP-F330, lithium battery CR2025, cassette and shoulder strap
Supplied accessories
See page 2.

AC power adaptor

Power requirements
100 - 240 V AC, 50/60 Hz
Power consumption
23 W
Output voltage
DC OUT: 8.4 V, 1.5 A in operating mode
Operating temperature
0 °C to 40 °C (32 °F to 104 °F)
Storage temperature
–20 °C to +60 °C (–4 °F to +140 °F)
Dimensions (approx.)
125 × 39 × 62 mm
(5 × 1 9/16 × 2 1/2 in.) (w/h/d)
excluding projecting parts
Mass (approx.)
280 g (9.8 oz)
excluding mains lead

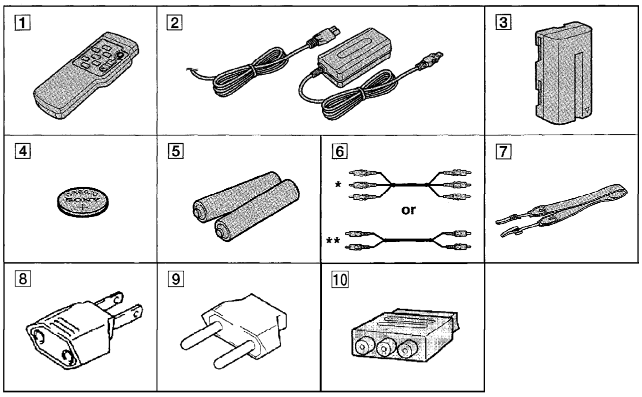
Battery pack

Output voltage
DC 7.2 V
Capacity
5.0 Wh
Dimensions (approx.)
38 × 21 × 71 mm
(1 9/16 × 13/16 × 2 7/8 in.)
(w/h/d)
Mass (approx.)
95 g (3.4 oz)
Type
Lithium ion

Design and specifications are subject to change without notice.

• SUPPLIED ACCESSORIES

Check that the following accessories are supplied with your camcorder.



1 **Wireless Remote Commander** (1)
CCD-TR427E/TR617E/TR717E/TR918E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

2 **AC-L10A/L10B/L10C AC power adaptor** (1), **Power cord** (1)

3 **NP-F330 battery pack** (1)

4 **CR2025 lithium battery** (1)
The lithium battery is already installed in your camcorder.

5 **Size AA (R6) battery for Remote Commander** (2)
CCD-TR427E/TR617E/TR717E/TR918E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

6 **A/V connecting cable** (1)
* : CCD-TR918E/TRV87E
** : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E

7 **Shoulder strap** (1)

8 **2-pin conversion adaptor** (1)
CCD-TR317E: E, HK/TRV47E: E, HK/TRV57E: E, HK/TRV67E: E, HK/TRV87E: E, HK

9 **2-pin conversion adaptor** (1)
CCD-TRV47E: JE/TRV57E: JE/TRV67E: JE /TRV87E: JE

10 **21-pin conversion connector** (1)
CCD-TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/
TRV57E: AEP, EE, NE, RU, UK/
TRV67E: AEP, EE, NE, RU, UK/
TRV87E: AEP, EE, NE, RU, UK

- Abbreviation
  HK : Hong Kong model
  EE : East European model
  NE : North European model
  RU : Russian model
  AUS : Australian model
  HK : Hong Kong model
  CN : Chinese model
  JE : Tourist model

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety checks before releasing the set to the customer.

1. Check the area of your repair for unsoldered or poorly-soldered connections. Check the entire board surface for solder splashes and bridges.
2. Check the interboard wiring to ensure that no wires are "pinched" or contact high-wattage resistors.
3. Look for unauthorized replacement parts, particularly transistors, that were installed during a previous repair. Point them out to the customer and recommend their replacement.
4. Look for parts which, through functioning, show obvious signs of deterioration. Point them out to the customer and recommend their replacement.
5. Check the B+ voltage to see it is at the values specified.
6. Flexible Circuit Board Repairing
   - Keep the temperature of the soldering iron around 270°C during repairing.
   - Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
   - Be careful not to apply force on the conductor when soldering or unsoldering.

Table for difference of function

Model	CCD-TR317E	CCD-TR417E	CCD-TR427E	CCD-TR617E	CCD-TR717E	CCD-TR918E	CCD-TRV37E	CCD-TRV47E	CCD-TRV48E	CCD-TRV57E	CCD-TRV67E	CCD-TRV87E	Remark
Destination	E, AUS, HK, CN	AEP, UK, EE, NE, RU	AEP, UK, EE, NE, RU	AEP, EE, NE, RU	AEP, UK, EE, NE, RU	AEP, UK, EE, NE, RU	AEP, UK, EE, NE, RU	E, AUS, HK, CN, JE	AEP, UK, EE, NE, RU	E, AUS, HK, CN, JE, AEP, UK, EE, NE, RU	E, AUS, HK, CN, JE, AEP, UK, EE, NE, RU	E, AUS, HK, CN, JE, AEP, UK, EE, NE, RU	
Remote commander			RMT-708	RMT-708	RMT-708	RMT-708		RMT-708	RMT-708	RMT-708	RMT-708	RMT-708	RMT-708: with IC301 of MA-374/375 board.
8/Hi8	8	8	8	8	Hi8	Hi8	8	8	8	8	Hi8	Hi8	Hi8: with S-VIDEO jack.
CCD imager	510H	510H	510H	510H	510H	760H	510H	510H	510H	510H	510H	760H	
CCD imager size (inch)	1/6	1/6	1/6	1/4	1/4	1/4	1/6	1/6	1/6	1/4	1/4	1/4	
Lens Optical	20×	20×	20×	20×	20×	20×	20×	20×	20×	20×	20×	20×	
Digital zoom 1	40×	40×(*3)	40×	40×	40×	40×	40×(*3)	40×	40×	40×	40×	40×	
Digital zoom 2	200×	40× (*1), 240× (*3)	80× (*1), 360×	80× (*2), 360×	80× (*1), 360×	80× (*1), 360×	40× (*1), 240× (*3)	200×	80× (*1), 360×	80× (*1), 360×	80× (*1), 360×	80× (*1), 360×	
LCD panel (inch)							2.5	2.5	2.5	2.5	2.5	2.5	2.5: with PD-117 board.
Back light, LCD						○						○	
VTR REC												○ (*4)	
Steady shot				○	○	○				○	○	○	○: with IC451 of SE-100/101 board.
DIGITAL EFFECT						○						○	○: with IC203 of VC-234 board.
Photo mode						○						○	○: with IC203 of VC-234 board.
Audio system	Mono	Mono	Mono	Mono	Mono	Stereo	Mono	Mono	Mono	Mono	Mono	Stereo	
Headphone jack							○	○	○	○	○	○	○: with IC451 of SE-100/101 board.
Night shot	○	○	○	○	○	SUPER	○	○	○	○	○	SUPER	SUPER: with IC203 of VC-234 board.
LASER LINK						○						○	○: with IC751 of VC-234 board.
Video Light				○	○	○				○	○	○	○: with VL-28/29 board.
CD board	CD-239						CD-240						
CF board	CF-66						CF-67						
EJ board	EJ-29						EJ-30						
PD board							PD-117						
MA board	MA-374						MA-375						
PJ board	PJ-99						PJ-100						
SE board				SE-100			SE-101						
VF board	VF-129						VF-129						
VL board				VL-28						VL-29			

*1	AEP2, UK model only
*2	AEP2 model only
*3	AEP1, EE, NE, RU model only
*4	E, AUS, HK, CN, JE model only

- Abbreviation

EE	: East European model	HK	: Hong Kong model
NE	: North European model	CN	: Chinese model
RU	: Russian model	JE	: Tourist model
AUS	: Australian model		

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* Parts reference sheet and color reproduction frame are shown on page 276 and 277.

SERVICE NOTE

1. POWER SUPPLY DURING REPAIRS

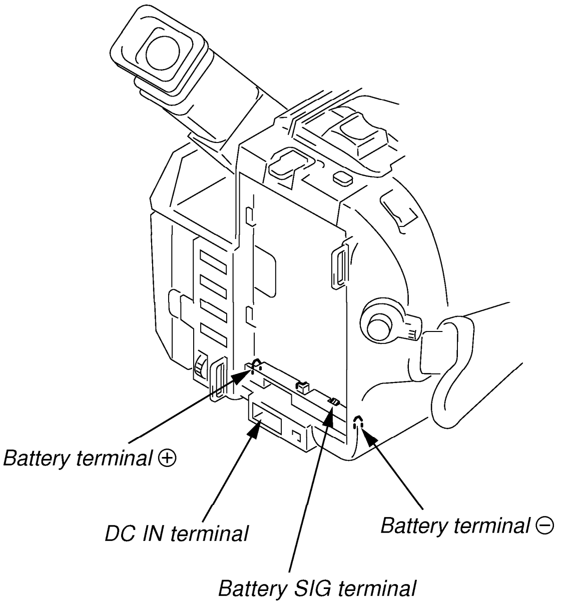
In this unit, about 10 seconds after power is supplied (8.4V) to the battery terminal using the service power cord (J-6082-223-A), the power is shut off so that the unit cannot operate.
This following two methods are available to prevent this. Take note of which to use during repairs.

Method 1.

Connect the servicing remote commander RM-95 (J-6082-053-B) to the LANC jack, and set the remote commander switch to the “ADJ” side.

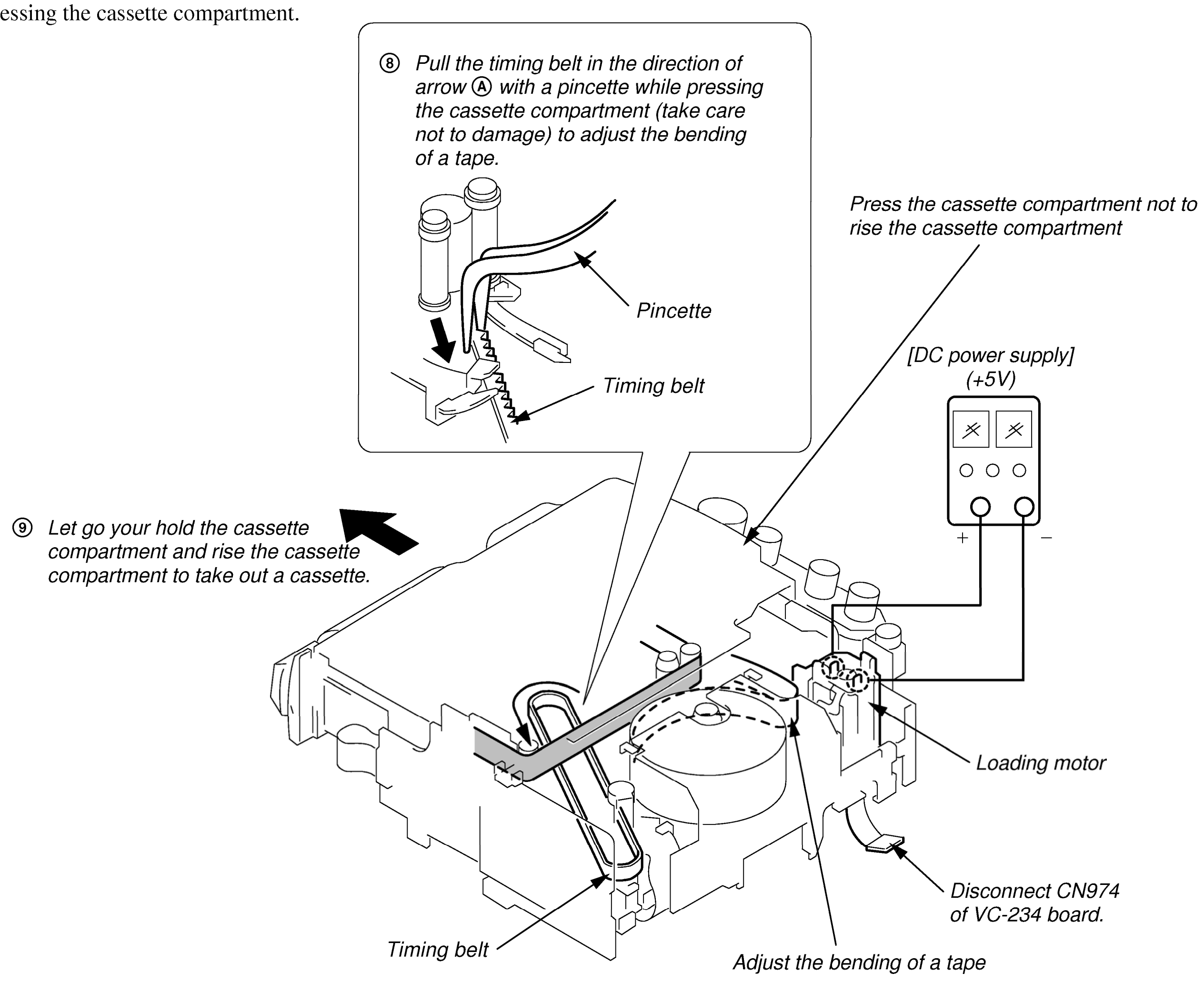
Method 2.

Use the DC IN terminal. (Use the AC power adaptor.)


Battery terminal ⊕
DC IN terminal
Battery terminal ⊖
Battery SIG terminal

2. TO TAKE OUT A CASSETTE WHEN NOT EJECT (FORCE EJECT)

① Refer to 2-1. to remove the front panel assembly.
② Refer to 2-1. to remove the cabinet (R) assembly.
③ Refer to 2-1. to remove the battery panel assembly.
④ Refer to 2-1. to remove the cabinet (L) assembly.
⑤ Refer to 2-1. to remove the cassette lid assembly.
⑥ Disconnect CN974 of VC-234 board.
⑦ Add +5V from the DC POWER SUPPLY and unload with a pressing the cassette compartment.



⑧ Pull the timing belt in the direction of arrow Ⓐ with a pincette while pressing the cassette compartment (take care not to damage) to adjust the bending of a tape.

⑨ Let go your hold the cassette compartment and rise the cassette compartment to take out a cassette.

Press the cassette compartment not to rise the cassette compartment

Pincette
Timing belt
[DC power supply]
(+5V)
+
−
Loading motor
Disconnect CN974
of VC-234 board.
Timing belt
Adjust the bending of a tape

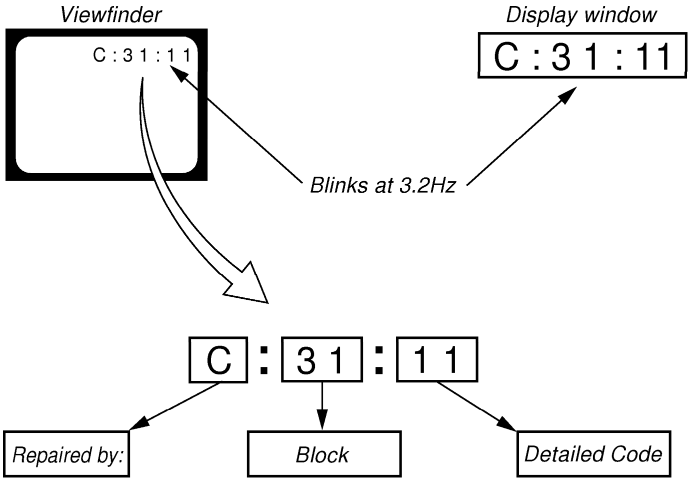
SELF-DIAGNOSIS FUNCTION

1. Self-diagnosis Function

When problems occur while the unit is operating, the self-diagnosis function starts working, and displays on the viewfinder or Display window what to do. This function consists of two display; self-diagnosis display and service mode display.
Details of the self-diagnosis functions are provided in the Instruction manual.

2. Self-diagnosis Display

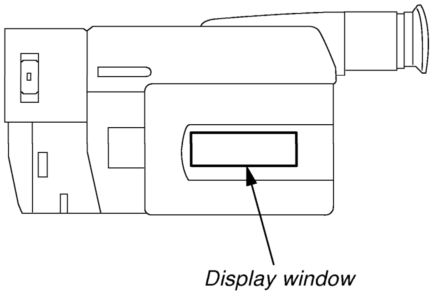
When problems occur while the unit is operating, the counter of the viewfinder or Display window shows a 4-digit display consisting of an alphabet and numbers, which blinks at 3.2 Hz. This 5-character display indicates the "repaired by:", "block" in which the problem occurred, and "detailed code" of the problem.


Viewfinder
C : 3 1 : 1 1
Display window
C : 3 1 : 11
Blinks at 3.2Hz
C : 3 1 : 1 1
Repaired by:
Block
Detailed Code

C : Corrected by customer
H : Corrected by dealer
E : Corrected by service engineer

Indicates the appropriate step to be taken.
E.g.
31 ....Reload the tape.
32 ....Turn on power again.

Refer to page 9 and 10.
Self-diagnosis Code Table.

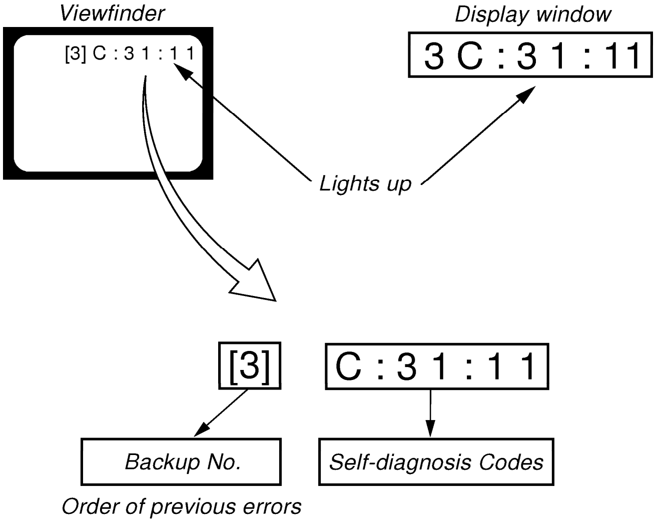

Display window

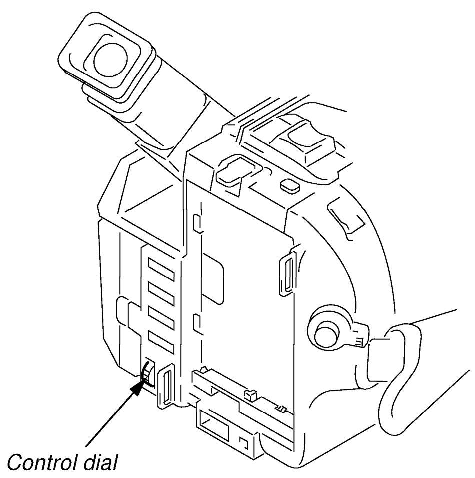
3. Service Mode Display

The service mode display shows up to six self-diagnosis codes shown in the past.

3-1. Display Method

While pressing the "STOP" key, set the switch from OFF to "VTR or PLAYER", and continue pressing the "STOP" key for 5 seconds continuously. The service mode will be displayed, and the counter will show the backup No. and the 5-character self-diagnosis codes.


Viewfinder
[3] C : 3 1 : 1 1
Display window
3 C : 3 1 : 11
Lights up
[3]
C : 3 1 : 1 1
Backup No.
Self-diagnosis Codes
Order of previous errors


Control dial

3-2. Switching of Backup No.

By rotating the control dial, past self-diagnosis codes will be shown in order. The backup No. in the [] indicates the order in which the problem occurred. (If the number of problems which occurred is less than 6, only the number of problems which occurred will be shown.)

[1] : Occurred first time	[4] : Occurred fourth time
[2] : Occurred second time	[5] : Occurred fifth time
[3] : Occurred third time	[6] : Occurred the last time

3-3. End of Display

Turning OFF the power supply will end the service mode display.

Note: The "self-diagnosis display" data will be backed up by the coin-type lithium battery (CF-66/67 board BH001). When this coin-type lithium battery is disconnected, the "self-diagnosis display" data will be lost by initialization.

4. Self-diagnosis Code Table

Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
C	0 4	0 0	Non-standard battery is used.	Use the InfoLITHIUM battery.
C	2 1	0 0	Condensation.	Remove the cassette, and insert it again after one hour.
C	2 2	0 0	Video head is dirty.	Clean with the optional cleaning cassette.
C	3 1	1 0	LOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	1 1	UNLOAD direction. Loading does not complete within specified time	Load the tape again, and perform operations from the beginning.
C	3 1	2 0	T reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 1	S reel side tape slacking when unloading.	Load the tape again, and perform operations from the beginning.
C	3 1	2 2	T reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	2 3	S reel fault.	Load the tape again, and perform operations from the beginning.
C	3 1	3 0	FG fault when starting capstan.	Load the tape again, and perform operations from the beginning.
C	3 1	3 1	FG fault during normal capstan operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 0	FG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 1	PG fault when starting drum.	Load the tape again, and perform operations from the beginning.
C	3 1	4 2	FG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 3	PG fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 1	4 4	Phase fault during normal drum operations.	Load the tape again, and perform operations from the beginning.
C	3 2	1 0	LOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	1 1	UNLOAD direction loading motor time-out.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 0	T reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 1	S reel side tape slacking when unloading.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 2	T reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	2 3	S reel fault.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 0	FG fault when starting capstan.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	3 1	FG fault during normal capstan operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 0	FG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 1	PG fault when starting drum.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 2	FG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 3	PG fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.
C	3 2	4 4	Phase fault during normal drum operations.	Remove the battery or power cable, connect, and perform operations from the beginning.

Self-diagnosis Code			Symptom/State	Correction
Repaired by:	Block Function	Detailed Code		
E	6 1	0 0	Difficult to adjust focus (Cannot initialize focus.)	Inspect the lens block focus reset sensor (Pin ⑫ of CN551 of VC-234 board) when focusing is performed when the control dial is rotated in the focus manual mode and the focus motor drive circuit (IC551 of VC-234 board) when the focusing is not performed. **Note:** Use the remote commander RM-95 only for the model without the focus dial.
E	6 1	1 0	Zoom operations fault (Cannot initialize zoom lens.)	Inspect the lens block zoom reset sensor (Pin ⑭ of CN551 of VC-234 board) when zooming is performed when the zoom lens is operated and the zoom motor drive circuit (IC551 of VC-234 board) when zooming is not performed.
E	6 2	0 0	Handshake correction function does not work well. (With pitch angular velocity sensor output stopped.)	Inspect pitch angular velocity sensor (SE451 of SE-101 board) peripheral circuits.
E	6 2	0 1	Handshake correction function does not work well. (With yaw angular velocity sensor output stopped.)	Inspect yaw angular velocity sensor (SE452 of SE-101 board) peripheral circuits.

SECTION 1
GENERAL

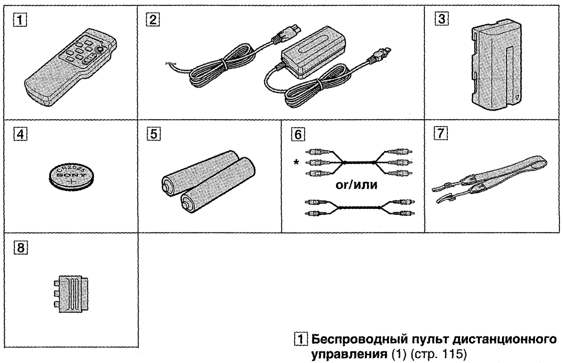
This section is extracted from instruction manual. (3-868-324-11)

Checking supplied accessories

Make sure that the following accessories are supplied with your camcorder.

Проверка прилагаемых принадлежностей

Убедитесь, что следующие принадлежности прилагаются к Вашей видеокамере.



1. **Wireless Remote Commander** (1) (p. 115)
   CCD-TRV48E/TRV57E/TRV67E/TRV87E only
2. **AC-L10A/L10B/L10C AC power adaptor** (1), **Mains lead** (1) (p. 14)
3. **NP-F330 battery pack** (1) (p. 13, 14)
4. **CR2025 lithium battery** (1) (p. 87)
   The lithium battery is already installed in your camcorder.
5. **R6 (size AA) battery for Remote Commander** (2) (p. 115)
   CCD-TRV48E/TRV57E/TRV67E/TRV87E only
6. **A/V connecting cable** (1) (p. 38)
   * for stereo model
7. **Shoulder strap** (1) (p. 111)
8. **21-pin adaptor** (1) (p. 39)

Contents of the recording cannot be compensated if recording or playback is not made due to a malfunction of the camcorder, video tape, etc.

1. **Беспроводный пульт дистанционного управления** (1) (стр. 115)
   Только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E
2. **Сетевой адаптер переменного тока AC-L10A/L10B/L10C** (1), **Шнур электропитания** (1) (стр. 14)
3. **Батарейный блок NP-F330** (1) (стр. 13,14)
4. **Литиевая батарейка CR2025** (1) (стр. 87)
   Литиевая батарейка уже установлена в Вашей видеокамере.
5. **Батарейка R6 (размера AA) для пульта дистанционного управления** (2) (стр. 115)
   Только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E
6. **Соединительный кабель аудио/видео** (1) (стр. 38)
   * Для стереофонической модели
7. **Плечевой ремень** (1) (стр. 111)
8. **21-штырьковый адаптер** (1) (стр. 39)

Содержание записи не может быть компенсировано в случае, если запись или воспроизведение не выполнены из-за неисправности видеокамеры, видеоленты и т.п.

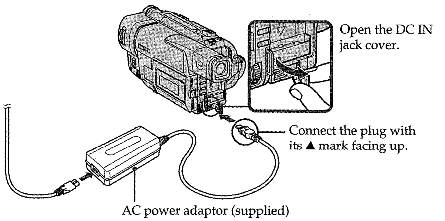
English

Quick Start Guide

This chapter introduces you to the basic features of your camcorder. See the page in parentheses "( )" for more information.

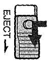
1 Connecting the mains lead (p. 19)

Use the battery pack when using your camcorder outdoors (p. 13).


Open the DC IN jack cover.
Connect the plug with its ▲ mark facing up.
AC power adaptor (supplied)

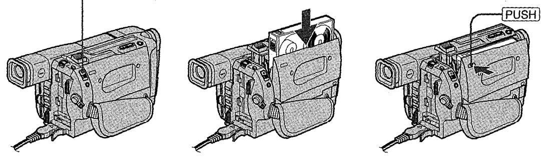
2 Inserting a cassette (p. 21)

❶ Slide EJECT in the direction of the arrow while pressing the small blue button.



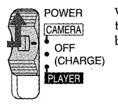
❷ Insert a cassette into the cassette compartment with its window facing out.

❸ Close the cassette compartment by pressing the PUSH mark on the cassette compartment. The cassette compartment automatically goes down.

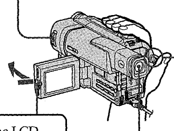


3 Recording a picture (p. 22)

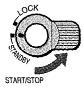
❶ Set the POWER switch to CAMERA while pressing the small green button.



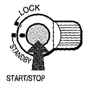
❷ Open the LCD panel while pressing OPEN.



❸ Turn STANDBY to STANDBY. The picture appears on the LCD screen.



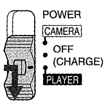
❹ Press the red button. Your camcorder starts recording. To stop recording, press the red button again.



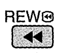
Viewfinder
When the LCD panel is closed, use the viewfinder placing your eye against its eyecup. The picture in the viewfinder is black and white.

4 Monitoring the playback picture on the LCD screen (p. 34)

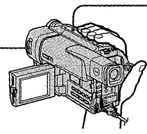
❶ Set the POWER switch to PLAYER while pressing the small green button.



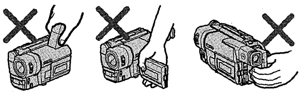
❷ Press ◀◀ to rewind the tape.



❸ Press ▶ to start playback.



NOTE
Do not pick up your camcorder by holding the viewfinder, the LCD panel or the battery pack.



— Getting started —

Using this manual

The instructions in this manual are for the five models listed in the table on the next page. Before you start reading this manual and operating your camcorder, check the model number by looking at the bottom of your camcorder. The CCD-TRV87E is the model used for illustration purposes. Otherwise, the model name is indicated in the illustrations. Any differences in operation are clearly indicated in the text, for example, "CCD-TRV87E only."
As you read through this manual, buttons and settings on your camcorder are shown in capital letters.
e.g. Set the POWER switch to CAMERA.
When you carry out an operation, you can hear a beep sound to indicate that the operation is being carried out.

— Подготовка к эксплуатации —

Использование данного руководства

Инструкции в данном руководстве предназначены для пяти моделей, указанных в таблице на следующей странице. Прежде, чем прочесть данное руководство, и начать эксплуатацию Вашей видеокамеры, проверьте номер модели на нижней стороне видеокамеры. Для иллюстративных целей используется модель CCD-TRV87E. Или же наименование модели указано на рисунках. Всякие отличия по экплуатации четко указаны в тексте, например, "только модель CCD-TRV87E".
При чтении данного руководства учитывайте, что кнопки и установки на видеокамере показаны заглавными буквами.
Прим.
Установите переключатель POWER в положение CAMERA.
При выполнении операции на видеокамере Вы сможете услышать зуммерный сигнал, подтверждающий выполнение операции.

Using this manual

Использование данного руководства

Types of differences/Типы различий

CCD-	TRV37E	TRV48E	TRV57E	TRV67E	TRV87E
System Система	8	8	8	Hi8	Hi8
S VIDEO OUT	—	—	—	●	●
Digital zoom Цифровой вариообъектив	40× *	80× **	80× **	80× **	80× **
Super NightShot Ночная суперсъемка	—	—	—	—	●
SteadyShot Устойчивая съемка	—	—	●	●	●
Remote sensor Дистанционный датчик	—	●	●	●	●
SUPER LASER LINK	—	—	—	—	●
Photo mode Фоторежим	—	—	—	—	●
PROGRAM AE	●	●	●	●	●
Low lux mode Режим низкого освещения	—	—	—	—	●
Digital effect Цифровой эффект	—	—	—	—	●
Fader function Функция фейдера	●	●	●	●	●
OVERLAP	—	—	—	—	●
WIPE	—	—	—	—	●
Built-in light Встроенная подсветка	—	—	●	●	●
Audio Аудиосигнал	monaural монофонический	monaural монофонический	monaural монофонический	monaural монофонический	stereo стереофонический

● Provided/Имеется
— Not provided/Не имеется

* 240× in some areas/240× в некоторых областях
** 360× in some areas/360× в некоторых областях

Using this manual

Note on TV colour systems

TV colour systems differ from country to country. To view your recordings on a TV, you need a PAL system-based TV.

Copyright precautions

Television programmes, films, video tapes, and other materials may be copyrighted. Unauthorized recording of such materials may be contrary to the provision of the copyright laws.

Precautions on camcorder care

- **The LCD screen and the viewfinder are manufactured using high-precision technology.**
  However, there may be some tiny black points and/or bright points (red, blue, green or white) that constantly appear on the LCD screen and in the viewfinder.
  These points occur normally in the manufacturing process and do not affect the recorded picture in any way.
  Effective ratio of pixels and/or screen are 99.99% or more.
- Do not let your camcorder get wet. Keep your camcorder away from rain and sea water. Letting your camcorder get wet may cause your camcorder to malfunction. Sometimes this malfunction cannot be repaired **[a]**.
- Never leave your camcorder exposed to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight **[b]**.
- Do not place your camcorder so as to point the viewfinder or the LCD screen toward the sun. The inside of the viewfinder or the LCD screen may be damaged **[c]**.

Использование данного руководства

Примечание по системам цветного телевидения

Системы цветного телевидения отличаются в зависимости от страны. Для просмотра Ваших записей на экране телевизора Вам необходимо использовать телевизор, основанный на системе PAL.

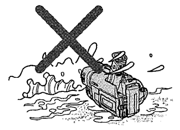
Предостережение об авторском праве

Телевизионные программы, кинофильмы, видеоленты и другие материалы могут быть защищены авторским правом. Нелицензированная запись таких материалов может противоречить положениям закона об авторском праве.

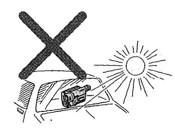
Меры предосторожности при уходе за видеокамерой

- **Экран ЖКД и видоискатель изготовлены с помощью высокопрецизионной технологии. Однако на экране ЖКД и в видоискателе могут постоянно появляться черные или яркие цветные точки (красные, синие или зеленые). Появление этих точек вполне нормально для процесса съемки и никоим образом не влияет на записываемое изображение. Свыше 99,99% экрана предназначено для эффективного использования.**
- Не допускайте, чтобы видеокамера становилась влажной. Предохраняйте видеокамеру от дождя и морской воды. Если Вы намочите видеокамеру, то это может привести к неисправности аппарата, которая не всегда может быть устранена **[a]**.
- Никогда не оставляйте видеокамеру в месте с температурой выше 60°C (140°F), как, например, в автомобиле, оставленном на солнце или под прямым солнечным светом **[b]**.
- Не распологайте Вашу видеокамеру так, чтобы экран ЖКД был направлен на солнце. Внутреннее устройство видоискателя или экрана ЖКД может быть повреждено **[c]**.

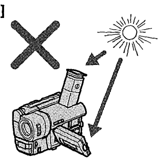
[a]



[b]



[c]



Step 1 Preparing the power supply

Пункт 1 Подготовка источника питания

Installing the battery pack

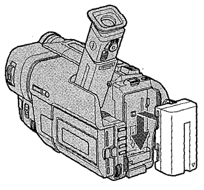
Install the battery pack to use your camcorder outdoors.

Slide the battery pack down until it clicks.

Установка батарейного блока

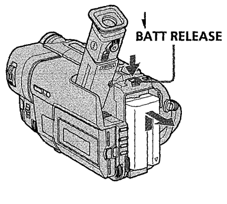
Установите батарейный блок для того, чтобы использовать Вашу видеокамеру вне помещения.

Передвиньте батарейный блок вниз так, чтобы он защелкнулся.



To remove the battery pack
Slide the battery pack out in the direction of the arrow while pressing ↓ BATT RELEASE down.

Для снятия батарейного блока
Передвиньте батарейный блок в направлении стрелки, нажав кнопку ↓ BATT RELEASE вниз.



After installing the battery pack
Do not carry your camcorder by holding the battery pack. If you do so, the battery pack may slide off your camcorder unintentionally, damaging your camcorder.

После установки батарейного блока
Не переносите свою видеокамеру, взявшись за батарейный блок. Если Вы так сделаете, батарейный блок может непроизвольно соскользнуть с Вашей видеокамеры и повредить ее.

Step 1 Preparing the power supply

Charging the battery pack

Use the battery pack after charging it for your camcorder.
Your camcorder operates only with the "InfoLITHIUM" battery pack (L series).

(1) Open the DC IN jack cover and connect the AC power adaptor supplied with your camcorder to the DC IN jack with the plug's ▲ mark facing up.
(2) Connect the mains lead to the AC power adaptor.
(3) Connect the mains lead to the mains.
(4) Set the POWER switch to OFF (CHARGE). Charging begins. The remaining battery time is indicated in minutes on the display window.

When the remaining battery indicator changes to ▬, **normal charge** is completed. To fully charge the battery **(full charge)**, leave the battery pack attached for about 1 hour after normal charge is completed until FULL appears in the display window. Fully charging the battery allows you to use the battery longer than usual.

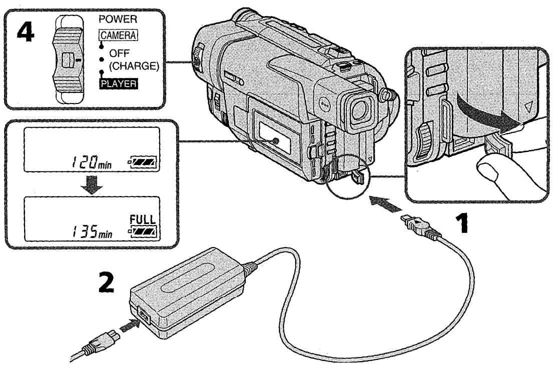
Пункт 1 Подготовка источника питания

Зарядка батарейного блока

Используйте батарейный блок для Вашей видеокамеры после его зарядки.
Ваша видеокамера работает только с батарейным блоком "InfoLITHIUM" (серии L).

(1) Откройте крышку гнезда DC IN и подсоедините сетевой адаптер переменного тока, прилагаемый к Вашей видеокамере, к гнезду DC IN, так чтобы знак штекера ▲ был направлен вверх.
(2) Подсоедините провод электропитания к сетевому адаптеру переменного тока.
(3) Подсоедините провод электропитания к сетевой розетке.
(4) Установите переключатель POWER в положение OFF (CHARGE). Начнется зарядка. В окошке дисплея будет отображаться время оставшегося заряда в минутах.

Если индикатор оставшегося заряда изменится на ▬, это значит, что **нормальная зарядка** завершена. Для полной зарядки батарейного блока **(полная зарядка)** оставьте батарейный блок прикрепленным на месте приблизительно на один час после завершения нормальной зарядки до тех пор, пока в окошко дисплея не появится индикация FULL. Полная зарядка батарейного блока позволяет Вам использовать батарейный блок дольше чем обычно.



Notes

- Prevent metallic objects from coming into contact with the metal parts of the DC plug of the AC power adaptor. This may cause a short-circuit, damaging the AC power adaptor.
- Keep the battery pack dry.
- When the battery pack is not to be used for a long time, charge the battery pack once fully and then use it until it fully discharges again. Keep the battery pack in a cool place.

Remaining battery time indicator

The remaining battery time indicator in the display window roughly indicates the recording time with the viewfinder.

Battery pack

The battery pack is charged a little before it leaves the factory.

Until your camcorder calculates the actual remaining battery time

"– – – – min" appears in the display window.

While charging the battery pack, no indicator appears or the indicator flashes in the display window in the following cases

– The battery pack is not installed correctly.
– The AC power adaptor is disconnected.
– Something is wrong with the battery pack.

Примечания

- Не допускайте контакта металлических предметов с металлическими частями штекера постоянного тока сетевого адаптера переменного тока. Это может привести к короткому замыканию и повреждению сетевого адаптера переменного тока.
- Сохраняйте батарейный блок сухим.
- Когда батарейный блок не будет использоваться длительный период времени, полностью зарядите батарейный блок один раз, а затем используйте его до тех пор, пока он снова полностью не разрядится. Храните батарейный блок в прохладном месте.

Индикатор времени оставшегося заряда батарейного блока

Индикатор времени оставшегося заряда батарейного блока в окошке дисплея приблизительно указывает время записи с помощью видоискателя.

Батарейный блок

Батарейный блок уже немного заряжен на предприятии-изготовителе.

До тех пор, пока Ваша видеокамера определит действительное время оставшегося заряда батарейного блока

В окошке дисплея будет отображаться индикация "– – – – min".

Во время зарядки батарейного блока никакой индикатор не появляется, или индикатор будет мигать в окошке дисплея в следующих случаях

– Батарейный блок установлен не правильно.
– Отсоединен сетевой адаптер переменного тока.
– Что-то не в порядке с батарейным блоком.

Charging time/Время зарядки

Battery pack/ Батарейный блок	Full charge (Normal charge)/ Полная зарядка (нормальная зарядка)
NP-F330 (supplied)/прилагается	150 (90)
NP-F530/F550	210 (150)
NP-F730/F750	300 (240)
NP-F930/F950	390 (330)
NP-F960	420 (360)

Approximate number of minutes to charge an empty battery pack

Приблизительное время в минутах для зарядки полностью разряженного батарейного блока

Recording time/Время записи

CCD-TRV37E/TRV48E/TRV57E/TRV67E

Battery pack/ Батарейный блок	Recording with the viewfinder/ Запись с помощью видоискателя		Recording with the LCD screen/ Запись с помощью экрана ЖКД	
	Continuous*/ Непрерывкая*	Typical**/ Типичная**	Continuous*/ Непрерывная*	Typical**/ Типичная**
NP-F330 (supplied)/прилагается	140 (125)	75 (70)	120 (105)	65 (55)
NP-F530	245 (220)	135 (120)	205 (180)	110 (100)
NP-F550	280 (250)	155 (135)	240 (210)	130 (115)
NP-F730	500 (450)	275 (245)	410 (370)	225 (205)
NP-F750	580 (525)	320 (290)	490 (440)	270 (240)
NP-F930	780 (705)	420 (385)	650 (585)	355 (320)
NP-F950	900 (790)	495 (435)	750 (675)	410 (370)
NP-F960	1035 (930)	570 (510)	880 (790)	490 (440)

CCD-TRV87E

Battery pack/ Батарейный блок	Recording with the viewfinder/ Запись с помощью видоискателя		Recording with the LCD screen/ Запись с помощью экрана ЖКД	
	Continuous*/ Непрерывкая*	Typical**/ Типичная**	Continuous*/ Непрерывная*	Typical**/ Типичная**
NP-F330 (supplied)/прилагается	135 (120)	75 (65)	115 (100)	65 (55)
NP-F530	235 (210)	130 (115)	195 (170)	110 (95)
NP-F550	270 (240)	150 (130)	230 (200)	125 (110)
NP-F730	475 (425)	260 (235)	395 (355)	215 (195)
NP-F750	550 (500)	300 (275)	470 (425)	260 (235)
NP-F930	745 (670)	410 (370)	625 (560)	345 (310)
NP-F950	850 (760)	465 (420)	725 (650)	400 (355)
NP-F960	990 (890)	545 (490)	850 (765)	470 (420)

Approximate number of minutes when you use a fully charged battery

Numbers in parentheses "(   )" indicate the time using a normally charged battery.

* Approximate continuous recording time at 25°C (77°F). The battery life will be shorter if you use your camcorder in a cold environment.

** Approximate number of minutes when recording while you repeat recording start/stop, zooming and turning the power on/off. The actual battery life may be shorter.

Приблизительное время в минутах при использовании полностью заряженного батарейного блока

Числа в скобках "(   )" указывают время при использовании батарейного блока с нормальной зарядкой.

* Приблизительное время непрерывной записи при температуре 25°C (77°F). При использовании видеокамеры в холодных условиях срок службы батарейного блока будет короче.

** Приблизительное время в минутах при записи с неоднократным пуском/остановкой записи, наездом видеокамеры и включением/выключением питания. Фактический срок службы заряда батарейного блока может быть короче.

Playing time/Время воспроизведения

CCD-TRV37E/TRV48E/TRV57E/TRV67E

Battery pack/ Батарейный блок	Playing time on LCD screen/ Время воспроизведения на экране ЖКД	Playing time with LCD closed/ Время воспроизведения при закрытом ЖКД
NP-F330 (supplied)/прилагается	125 (110)	145 (130)
NP-F530	215 (190)	260 (230)
NP-F550	250 (220)	295 (260)
NP-F730	430 (385)	525 (475)
NP-F750	510 (460)	610 (550)
NP-F930	680 (610)	825 (740)
NP-F950	780 (700)	930 (830)
NP-F960	915 (820)	1090 (980)

CCD-TRV87E

Battery pack/ Батарейный блок	Playing time on LCD screen/ Время воспроизведения на экране ЖКД	Playing time with LCD closed/ Время воспроизведения при закрытом ЖКД
NP-F330 (supplied)/прилагается	120 (105)	140 (125)
NP-F530	205 (180)	245 (220)
NP-F550	240 (210)	280 (250)
NP-F730	410 (370)	500 (450)
NP-F750	490 (440)	580 (525)
NP-F930	680 (585)	780 (705)
NP-F950	780 (675)	900 (790)
NP-F960	880 (790)	1035 (930)

Approximate number of minutes when you use a fully charged battery

Numbers in parentheses "(   )" indicate the time using a normally charged battery. The battery life will be shorter if you use your camcorder in a cold environment.

After charging the battery pack

Disconnect the AC power adaptor from the DC IN jack on your camcorder.

Note on the remaining battery time indicator during recording

The indicator may not be correct, depending on the conditions in which you are recording. When you close the LCD panel and open it again, it takes about 1 minute for the correct remaining battery time to be displayed.

What is "InfoLITHIUM"?

The "InfoLITHIUM" is a lithium ion battery pack which can exchange data such as battery consumption with compatible electronic equipment. This unit is compatible with the "InfoLITHIUM" battery pack (L series). Your camcorder operates only with the "InfoLITHIUM" battery. "InfoLITHIUM" L series battery packs have the InfoLITHIUM L mark. "InfoLITHIUM" is a trademark of Sony Corporation.

Приблизительное время в минутах при использовании полностью заряженного батарейного блока

Числа в скобках "(   )" указывают время при использовании батарейного блока с нормальной зарядкой. При использовании видеокамеры в холодных условиях срок службы батарейного блока будет короче.

После зарядки батарейного блока

Отсоедините сетевой адаптер переменного тока от гнезда DC IN на Вашей видеокамере.

Примечания по индикатору времени оставшегося заряда батарейного блока во время записи

Индикатор может быть неправильным в зависимости от условий, в которых выполняется запись. Если Вы закроете панель ЖКД и откроете ее снова, то пройдет около 1 минуты, прежде чем на дисплее появится правильное время оставшегося заряда батарейного блока.

Что такое "InfoLITHIUM"?

"InfolLITHIUM" является литиево-ионным *батарейным блоком, который может* обмениваться данными, как например потребление батарейного заряда, с совместимой электронной аппаратурой. Это устройство совместимо с батарейным блоком "InfoLITHIUM" (серии L). Ваша видеокамера работает только с батарейным блоком "InfoLITHIUM". На батарейных блоках "InfoLITHIUM" серии L имеется знак InfoLITHIUM L.
"InfoLITHIUM" является торговой маркой корпорации Sony Corporation.

Step 1 Preparing the power supply

Connecting to the mains

When you use your camcorder for a long time, we recommend that you power it from the mains using the AC power adaptor.

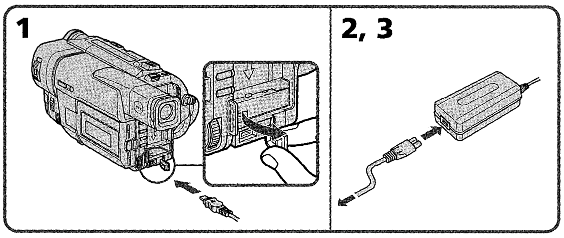
(1) Open the DC IN jack cover, and connect the AC power adaptor to the DC IN jack on your camcorder with the plug's ▲ mark facing up.
(2) Connect the mains lead to the AC power adaptor.
(3) Connect the mains lead to the mains.

Пункт 1 Подготовка источника питания

Подсоединение к сетевой розетке

Если Вы собираетесь использовать видеокамеру длительное время, рекомендуется использовать питание от электрической сети с помощью сетевого адаптера переменного тока.

(1) Откройте крышку гнезда DC IN и подсоедините сетевой адаптер переменного тока к гнезду DC IN на Вашей видеокамеру, так чтобы знак ▲ на штекере был обращен вверх.
(2) Подсоедините провод электропитания к сетевому адаптеру переменного тока.
(3) Подсоедините провод электропитания к сетевой розетке.



Step 1 Preparing the power supply

PRECAUTION
The set is not disconnected from the AC power source (mains) as long as it is connected to the mains, even if the set itself has been turned off.

Notes

- The AC power adaptor can supply power even if the battery pack is attached to your camcorder.
- The DC IN jack has "source priority". This means that the battery pack cannot supply any power if the mains lead is connected to the DC IN jack, even when the mains lead is not plugged into the mains.

Using a car battery
Use Sony DC Adaptor/Charger (not supplied).

Пункт 1 Подготовка источника питания

ПРЕДОСТЕРЕЖЕНИЕ
Аппарат не отключается от источника питания перем. тока (электрической сети) до тех пор, пока он подключен к электрической сети, даже если сам аппарат выключен.

Примечания

- Питание от сетевого адаптера переменного тока может подаваться даже в случае, если батарейный блок прикреплен к Вашей видеокамере.
- Гнездо DC IN имеет "приоритет источника". Это значит, что питание от батарейного блока не может подаваться, если провод электропитания подсоединен к гнезду DC IN, даже если провод электропитания и не подсоединен к сетевой розетке.

Использование автомобильного аккумулятора
Используйте адаптер/зарядное устройство постоянного тока Sony (не прилагается).

Step 2 Inserting a cassette

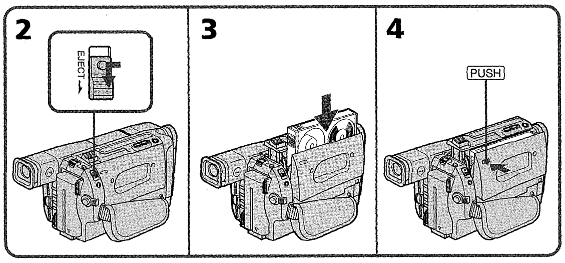
When you want to record in the Hi8 system, use Hi8 video cassette **Hi8**. (CCD-TRV67E/TRV87E only)

(1) Prepare the power supply (p. 13).
(2) Slide EJECT in the direction of the arrow while pressing the small blue button. The cassette compartment automatically lifts up and opens.
(3) Insert a cassette with its window facing out and the tab on the cassette up.
(4) Close the cassette compartment by pressing the PUSH mark on the cassette compartment. The cassette compartment automatically goes down.

Пункт 2 Установка кассеты

Если Вы хотите выполнять запись в системе Hi8, используйте видеокассету Hi8 **Hi8** (только модель CCD-TRV67E/TRV87E).

(1) Подготовьте источник питания (стр. 13).
(2) Нажав маленькую синюю кнопку, передвиньте переключатель EJECT в направлении стрелки. Отсек для кассеты автоматически поднимется вверх и откроется.
(3) Вставьте кассету, так чтобы окошко было обращено наружу, а лепесток на кассете вверх.
(4) Закройте отсек для кассеты, нажав метку PUSH на отсеке. Отсек для кассеты автоматически опустится вниз.



To eject a cassette
Slide EJECT in the direction of the arrow while pressing the small blue button.

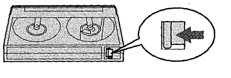
Note
Do not press the cassette compartment down. Doing so may cause malfunction.

To prevent accidental erasure
Slide the write-protect tab on the cassette to expose the red mark.

Для извлечения кассеты
Нажав маленькую синюю кнопку, передвиньте переключатель EJECT в направлении стрелки.

Примечание
Не нажимайте вниз отсек для кассеты. Это может привести к неисправности.

Для предотвращения случайного стирания
Передвиньте лепесток защиты записи на кассете, так чтобы появилась красная метка.



Recording a picture

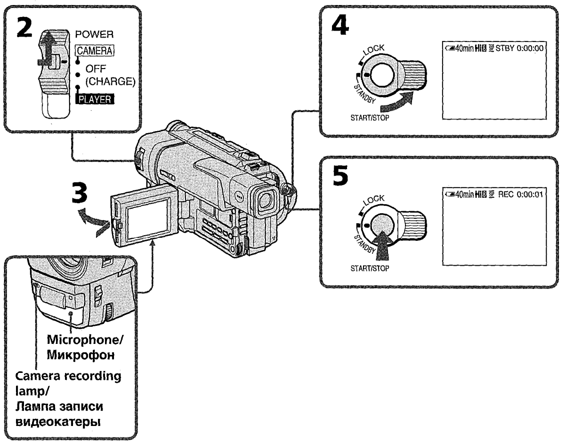
Your camcorder automatically focuses for you.

(1) Install the power source and insert a cassette. See "Step 1" and "Step 2" for more information (p. 13 to 21).
(2) Set the POWER switch to CAMERA while pressing the small green button. The lens cover opens.
(3) Open the LCD panel while pressing OPEN. The viewfinder automatically turns off.
(4) Turn STANDBY to STANDBY.
(5) Press START/STOP. Your camcorder starts recording. The "REC" indicator appears. The camera recording lamp located on the front of your camcorder lights up. To stop recording, press START/STOP again. The recording lamp lights up in the viewfinder when you record with the viewfinder.

Запись изображения

Ваша видеокамера автоматически выполняет фокусировку за Вас.

(1) Установите источник питания и вставьте кассету. Подробные сведения приведены в "Пункте 1" и "Пункте 2" (стр. 13 – 21).
(2) Нажав маленькую зеленую кнопку, установите переключатель POWER в положение CAMERA. Откроется крышка объектива.
(3) Нажав кнопку OPEN, откройте панель ЖКД. Видоискатель выключится автоматически.
(4) Поверните рычаг STANDBY в положение STANDBY.
(5) Нажмите кнопку START/STOP. Ваша видеокамера начнет запись. Появится индикатор "REC". Высветится также лампочка записи на передней панели видеокамеры. Для остановки записи нажмите кнопку START/STOP еще раз. При записи с помощью видоискателя в нем будет высвечиваться лампочка записи.



Recording a picture

Note
Fasten the grip strap firmly. Do not touch the built-in microphone during recording.

To enable smooth transition
You can make the transition between the last scene you recorded and the next scene smooth as long as you do not eject the cassette. When you exchange the battery pack in the recording mode, set STANDBY to LOCK.

If you leave your camcorder in the standby mode for 5 minutes while the cassette is inserted
Your camcorder automatically turns off. This is to save battery power and to prevent battery and tape wear. To resume the standby mode, turn STANDBY down and up again. To start recording, press START/STOP.

To set the counter to 0:00:00
Press COUNTER RESET (p. 112).

After recording

(1) Turn STANDBY down to LOCK.
(2) Close the LCD panel.
(3) Eject the cassette.
(4) Set the POWER switch to OFF (CHARGE).

After use your camcorder (CCD-TRV57E/TRV67E/TRV87E only)
Remove the battery pack from your camcorder to avoid turning on the built-in light.

Запись изображения

Примечание
Плотно пристегните ремень для захвата видеокамеры. Не прикасайтесь к встроенному микрофону во время записи.

Для обеспечения плавного перехода
Вы можете выполнять плавный переход между последним записанным эпизодом и следующим эпизодом до тех пор, пока не извлечете кассету. При замене батарейного блока в режиме записи установите рычаг STANDBY в положение LOCK.

Если Вы оставите Вашу видеокамеру в режиме готовности на 5 минут при вставленной кассете
Видеокамера выключится автоматически. Это предотвращает расход заряда батарейного блока и износ ленты. Для возобновления режима готовности поверните рычаг STANDBY вниз и снова вверх. Для начала записи нажмите кнопку START/STOP.

Для установки счетчика в положение 0:00:00
Нажмите кнопку COUNTER RESET (стр. 112).

После записи

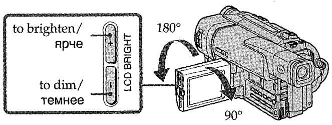
(1) Поверните рычаг STANDBY в положение LOCK.
(2) Закройте панель ЖКД.
(3) Извлеките кассету.
(4) Установите переключатель POWER в положение OFF (CHARGE).

После пользования видеокамерой (только модель CCD-TRV57E/TRV67E/TRV87E)
Выньте батарейный блок из Вашей видеокамеры во избежание включения встроенной подсветки.

Recording a picture

Adjusting the LCD screen

To adjust the brightness of the LCD screen, press either of the two buttons on LCD BRIGHT.
The LCD panel moves about 90 degrees to the viewfinder side and about 180 degrees to the lens side.
If you turn the LCD panel over so that it faces the other way, the ☺ indicator appears in the viewfinder and on the LCD screen (**Mirror mode**).



When closing the LCD panel, set it vertically until it clicks, and swing it into the camcorder body.

Note
When using the LCD screen except in the mirror mode, the viewfinder automatically turns off.

When you use the LCD screen outdoors in direct sunlight
The LCD screen may be difficult to see. If this happens, we recommend that you use the viewfinder.

Picture in the mirror mode
The picture on the LCD is a mirror-image. However, the picture will be normal when recorded.

During recording in the mirror mode
DATE and TIME on your camcorder do not work.

Indicators in the mirror mode
- The STBY indicator appears as ▮▮● and REC as ●. Some of the other indicators appear mirror-reversed and others are not displayed.
- The date appears mirror-reversed when the auto date function is working. However, the date will be normal when recorded.

Запись изображения

Регулировка экрана ЖКД

Для регулировки яркости экрана ЖКД нажмите одну их кнопок на LCD BRIGHT.
Панель ЖКД может передвигаться примерно на 90 градусов в сторону видоискателя и примерно на 180 градусов в сторону объектива.
Если Вы перевернете панель ЖКД так, что она будет направлена в другую сторону, индикатор ☺ появится в видоискателе и на экране ЖКД (**Зеркальный режим**).

При закрывании панели ЖКД установите ее вертикально, пока не раздастся щелчок, а затем присоедините ее к корпусу видеокамеры.

Примечание
При использовании экрана ЖКД видоискатель автоматически выключается, кроме зеркального режима.

Если Вы используете экран ЖКД вне помещения под прямым солнечным светом
Возможно будет трудно разглядеть экран ЖКД. В этом случае рекомендуется использовать видоискатель.

Изображение в зеркальном режиме
Изображение на экране ЖКД будет отображаться зеркально. Однако запись изображения будет нормальной.

Во время записи в зеркальном режиме
DATE и TIME на Вашей видеокамере не будут работать.

Индикаторы в зеркальном режиме
- Индикатор STBY появится в виде ▮▮●, а индикатор REC в виде ●. Некоторые другие индикаторы появятся в зекально отображенном виде, а некоторые из них не будут отображаться совсем.
- В случае, если работает функция автоматической даты, то дата будет отображаться зеркально, однако на записи дата будет в нормальном виде.

Recording a picture

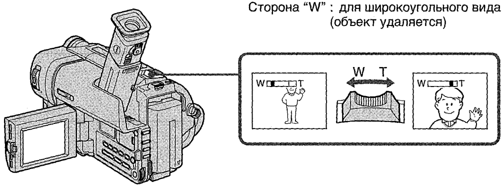
Using the zoom feature

Move the power zoom lever a little for a slower zoom. Move it further for a faster zoom.
Using the zoom function sparingly results in better-looking recordings.
"T" side: for telephoto (subject appears closer)
"W" side: for wide-angle (subject appears farther away)

Запись изображения

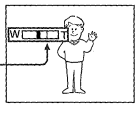
Использование функции наезда видеокамеры

Передвиньте рычаг приводного вариообъектива слегка для относительно медленного наезда видеокамеры.
Передвиньте его сильнее для ускоренного наезда видеокамеры.
Использование функции наезда видеокамеры в небольшом количестве обеспечивает наилучшие результаты.
Сторона "T" : для телефото (объект приближается)
Сторона "W" : для широкоугольного вида (объект удаляется)



Zoom greater than 20× is performed digitally.
To activate digital zoom, select the digital zoom power in D ZOOM in the menu settings. (p. 70)
The picture quality deteriorates as the picture is processed digitally.

Наезд видеокамеры более 20x выполненяется цифровым методом. Для активизация цифрового вариообъектива, выберите увеличение цифрового вариообъектива в команде D ZOOM в установках меню. (стр. 70)
Качество изображения ухудшается при цифровой обработке изображения.



The right side of the bar shows the digital zooming zone.
The digital zooming zone appears when you select the digital zoom power in D ZOOM in the menu settings./
Правая сторона полосы на экране показывает зону цифровой трансфокации. Зона цифровой трансфокации появляется, когда Вы выбираете увеличение цифрового вариообъетивка в команде D ZOOM в установках меню.

Recording a picture

When you shoot close to a subject
If you cannot get a sharp focus, move the power zoom lever to the "W" side until the focus is sharp. You can shoot a subject that is at least about 80 cm (about 2 feet 5/8 inch) away from the lens surface in the telephoto position, or about 1 cm (about 1/2 inch) away in the wide-angle position.

Notes on digital zoom
- Digital zoom starts to function when zoom exceeds 20×.
- The picture quality deteriorates as you go toward the "T" side.

Запись изображения

При съемке объекта с близкого положения
Если Вы не можете получить четкой фокусировки, передвиньте рычаг приводного вариообъектива в сторону "W" до получения четкой фокусировки. Вы можете выполнять съемку объекта в положении телефото, который отстоит по крайней мере на расстоянии 80 см от поверхности объектива или же около 1 см в положении широкоугольного вида.

Примечания к наезду видеокамеры цифровым методом
- Цифровой вариообъектив начинает срабатывать в случае, если наезд видеокамеры превышает 20x.
- Качество изображения ухудшается по мере приближения к стороне "T".

To record pictures with the viewfinder – adjusting the viewfinder

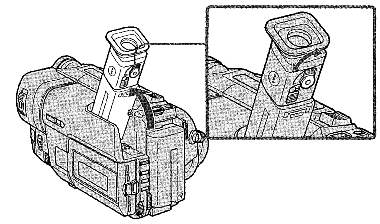
If you record pictures with the LCD panel closed, check the picture with the viewfinder. Adjust the viewfinder lens to your eyesight so that the indicators in the viewfinder come into sharp focus.

Lift up the viewfinder and move the viewfinder lens adjustment lever.

Для записи изображений с помощью видоискателя – регулировка видоискателя

Если Вы будете записывать изображения при закрытой панели ЖКД, проверьте изображение с помощью видоискателя. Отрегулируйте объектив видоискателя в соответствии со своим зрением, так чтобы индикаторы в видоискателе были четко сфокусированы.

Поднимите видоискатель и подвигайте рычаг регулировки объектива видоискателя.

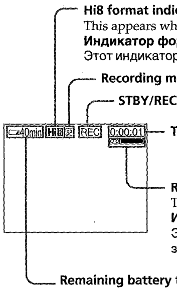


Indicators displayed in the recording mode

The indicators are not recorded on tape.

Индикаторы, отображаемые в режиме записи

Индикаторы не записываются на ленту.



Hi8 format indicator (CCD-TRV67E/TRV87E only)
This appears while playing back or recording in Hi8 format./
Индикатор формата Hi8 (только модель CCD-TRV67E/TRV87E)
Этот индикатор появляется во время воспроизведения или записи в формате Hi8.

Recording mode indicator/Индикатор режима записи

STBY/REC indicator/Индикатор STBY/REC

Tape counter/Счетчик ленты

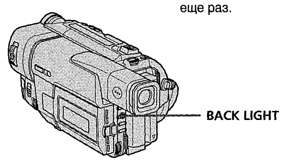
Remaining tape indicator
This appears after you insert a cassette and record or play back for a while./
Индикатор оставшейся ленты
Этот индикатор появляется после установки кассеты и выполнения записи или воспроизведения в течение некоторого времени.

Remaining battery time indicator/
Индикатор времени оставшегося заряда батарейного блока

Shooting backlit subjects (BACK LIGHT)

When you shoot a subject with the light source behind the subject or a subject with a light background, use the backlight function.

Press BACK LIGHT in the recording or standby mode.
The ☒ indicator appears in the viewfinder or on the LCD screen.
To cancel, press BACK LIGHT again.



If you press EXPOSURE when shooting backlit subjects
The backlight function will be canceled.

Съемка объектов с задней подсветкой (BACK LIGHT)

Если Вы выполняете съемку объекта с источником света позади него или же объекта со светлым фоном, используйте функцию задней подсветки.

Нажмите кнопку BACK LIGHT в режиме записи или ожидания.
В видоискателе или на экране ЖКД появится индикатор ☒.
Для отмены нажмите кнопку BACK LIGHT еще раз.

Если вы нажмете кнопку EXPOSURE при выполнении съемки объектов с задней подсветкой
Функция задней подсветки будет отменена.

Shooting in the dark (NightShot)

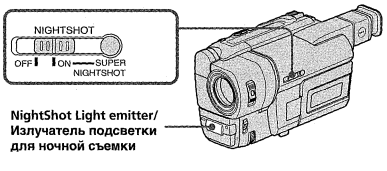
The NightShot function enables you to shoot a subject in a dark place. For example, you can satisfactorily record the environment of nocturnal animals for observation when you use this function.

While your camcorder is in the standby mode, slide NIGHTSHOT to ON.
◙ and "NIGHTSHOT" indicators flash on the LCD screen or in the viewfinder. To cancel the NightShot function, slide NIGHTSHOT to OFF.

Съемка в темноте (Ночная съемка)

Функция ночной съемки позволяет Вам выполнять съемку объектов в темных местах. Например, Вы сможете с успехом выполнять съемку ночных животных для наблюдения при использовании данной функции.

В то время, когда видеокамера находится в режиме ожидания, передвиньте переключатель NIGHTSHOT в положение ON.
Индикаторы ◙ и "NIGHTSHOT" начнут мигать на экране ЖКД или в видоискателе.
Для отмены функции ночной съемки передвиньте переключатель NIGHTSHOT в положении OFF.



Using the Super NightShot mode
– CCD-TRV87E only
The Super NightShot mode makes subjects more than four times brighter than those recorded in the NightShot mode.

(1) Slide NIGHTSHOT to ON in the standby mode. ◙ indicator appears on the LCD screen or in the viewfinder.
(2) Press SUPER NIGHTSHOT. S◙ and "SUPER NIGHTSHOT" indicators flash on the LCD screen or in the viewfinder.
To cancel the Super NightShot mode, press SUPER NIGHTSHOT again.

Using the NightShot Light
The picture will be clearer with the NightShot Light on. To enable NightShot Light, set N.S.LIGHT to ON in the menu settings (p. 70).

Использование режима ночной суперсъемки
— Только модель CCD-TRV87E
Режим ночной суперсъемки делает объекты более, чем в четыре раза ярче, чем при записи их в режиме ночной съемки.

(1) Передвиньте NIGHTSHOT в положение ON в режиме ожидания. Индикатор ◙ появится на экране ЖКД или в видоискателе.
(2) Нажмите SUPER NIGHTSHOT. Индикаторы S◙ и "SUPER NIGHTSHOT" будут мигать на экране ЖКД или в видоискателе.
Для отмены режима ночной суперсъемки снова нажмите SUPER NIGHTSHOT.

Использование прдсветки для ночной съемки
Изображение станет ярче, если включить функцию ночной подсветки. Для включения функции ночной подсветки установите команду N.S.LIGHT в положение ON в установках меню (стр. 70).

Notes
- Do not use the NightShot function in bright places (ex. outdoors in the daytime). This may cause your camcorder to malfunction.
- When you keep NIGHTSHOT set to ON in normal recording, the picture may be recorded in incorrect or unnatural colours.
- If focusing is difficult with the autofocus mode when using the NightShot function, focus manually.

While using the NightShot function, you can not use the following functions:
- Exposure
- PROGRAM AE
- Fader* (CCD-TRV87E only)
- Digital effect* (CCD-TRV87E only)

* You cannot use these functions only in the Super NightShot mode.

Shutter speed in the Super NightShot mode (CCD-TRV87E only)
The shutter speed will be automatically changed depending on the brightness of the scene.

The SUPER NIGHTSHOT button does not work (CCD-TRV87E only):
- while the fader function is set or in use
- while the digital effect fnuction is in use
- when NIGHTSHOT is set to OFF

NightShot Light
NightShot Light rays are infrared and so are invisible. The maximum shooting distance using the NightShot Light is about 3 m (10 feet).
The shooting distance will be twice or more in the Super NightShot mode (CCD-TRV87E only).

Примечания
- Не используйте функцию ночной съемки в ярких местах (например, на улице в дневное время). Это может привести к неисправности Вашей видеокамеры.
- Если Вы удерживаете NIGHTSHOT в положении ON во время нормальной записи, изображение может быть записано в неправильных или ненатуральных цветах.
- Если фокусировка затруднена в автоматическом режиме при использовании функции ночной съемки, выполните фокусировку вручную.

При использовании функции ночной съемки Вы не можете использовать следующие функции:
- Экспозиция
- PROGRAM AE
- Фейдер* (только модель CCD-TRV87E)
- Цифровой эффект* (только модель CCD-TRV87E)

* Вы не можете использовать эти функции только в режиме ночной суперсъемки.

Скорость затвора в режиме ночной суперсъемки (только модель CCD-TRV87E)
Скорость затвора будет автоматически изменяться в зависимости от яркости сцены.

Кнопка SUPER NIGHTSHOT не работает (только модель CCD-TRV87E):
- если установлена или используется функция фейдера
- если используется функция цифрового эффекта
- если переключатель NIGHTSHOT установлен в положение OFF

Подсветка для ночной съемки
Лучи подсветки для ночной съемки являются инфракрасными и поэтому невидимыми. Максимальное расстояние для съемки при использовании подсветки для ночной съемки равно примерно 3 м.
Расстояние для съемки будет в два или более раз больше в режиме ночной суперсъемки (только модель CCD-TRV87E).

Recording a picture

Superimposing the date and time on pictures

You can record the date or time displayed in the viewfinder or on the LCD screen superimposed on the picture.
Carry out the following operations in the standby or recording mode.

Press DATE to record the date.
Press TIME to record the time.
Press DATE (or TIME), then press TIME (or DATE) to record the date and time.

Press DATE and/or TIME again. The date and/or time indicator disappears.

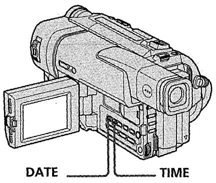
Запись изображения

Наложение даты и времени на изображения

Вы можете записывать дату или время, отображаемые в видоискателе или на экране ЖКД, которые будут наложены на изображение.
Выполните следующие операции в режиме ожидания или записи.

Нажмите кнопку DATE для записи даты.
Нажмите кнопку TIME для записи даты.
Нажмите кнопку DATE (или TIME), затем нажмите кнопку TIME (или DATE) для записи даты и времени.

Нажмите кнопку DATE и/или TIME еще раз. Индикатор даты и/или времени исчезнет.



The default clock setting is set to London time for United Kingdom and to Paris time for the other European countries. You can reset the clock in the menu settings (p. 70).

Note
The date and time indicators recorded manually cannot be deleted.

If you do not record the date and time in the picture
Record the date and time in the black screen as the background for about 10 seconds, then erase the date and time indicators before starting actual recording.

Часы установлены по умолчанию на время Лондона для Соединенного Королевства и на время Парижа для других европейских стран. Вы можете переустановить часы в установках меню (стр. 70).

Примечание
Индикаторы даты и времени, записанные вручную, не могут быть удалены.

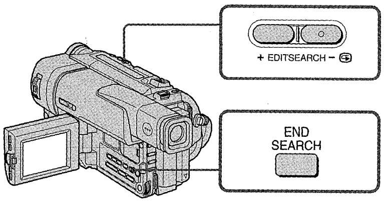
Если Вы не записываете дату и время на изображении
Запишите дату и время на фоне черного экрана в течение 10 секунд, затем сотрите индикаторы даты и времени перед тем, как начать действительную запись.

Checking the recording
– END SEARCH / EDITSEARCH / Rec Review

You can use these buttons to check the recorded picture or shoot so that the transition between the last recorded scene and the next scene you record is smooth.

Проверка записи
– END SEARCH / EDITSEARCH / Просмотр записи

Вы можете использовать эти кнопки для проверки записанного изображения или съемки, так чтобы переход между последним записанным эпизодом и следующим записываемым эпизодом был плавным.



END SEARCH

You can go to the end of the recorded section after you record.

Press END SEARCH in the standby mode.
The last 5 seconds of the recorded section are played back and playback stops. You can monitor the sound from the speaker, headphones (CCD-TRV87E only) or an earphone (CCD-TRV37E/TRV48E/TRV57E/TRV67E only).

Note
If you start recording after using the end search function, occasionally, the transition between the last scene you recorded and the next scene may not be smooth.

Once you eject the cassette after you have recorded on the tape
The end search function does not work.

END SEARCH

Вы можете дойти до конца записанной части ленты после выполнения записи.

Нажмите END SEARCH в режиме ожидания.
Последние 5 ссекунд записанной части будут воспроизведены и воспроизведение остановится. Вы можете контролировать звук через акустическую систему, головные телефоны (только модель CCD-TRV87E) или наушники (только модель CCD-TRV37E/TRV48E/TRV57E/TRV67E).

Примечание
Если Вы случайно начнете запись после использования функции поиска конца записи, переход между последней записанной сценой и следующей записываемой сценой может не быть плавным.

Если Вы вынули кассету после записи на ленту
Функция поиска конца записи работать не будет.

Checking the recording
– END SEARCH / EDITSEARCH / Rec Review

EDITSEARCH

You can search for the next recording start point.

Hold down the +/– (⊜) side of EDITSEARCH in the standby mode. The recorded section is played back.
+ : to go forward
– : to go backward
Release EDITSEARCH to stop playback. If you press START/STOP, re-recording begins from the point you released EDITSEARCH. You cannot monitor the sound.

Rec Review

You can check the last recorded section.

Press the – (⊜) side of EDITSEARCH momentarily in the standby mode.
The last few seconds of the recorded section are played back. You can monitor the sound from the speaker, headphones (CCD-TRV87E only) or an earphone (CCD-TRV37E/TRV48E/TRV57E/TRV67E only).

Проверка записи
– END SEARCH / EDITSEARCH / Просмотр записи

EDITSEARCH

Вы можете выполнять поиск места начала следующей записи.

Держите нажатой сторону +/– (⊜) кнопки EDITSEARCH в режиме ожидания. Будет воспроизведена записанная часть.
+ : для продвижения вперед
– : для продвижения назад
Отпустите кнопку EDITSEARCH для остановки воспроизведения. Если Вы нажмете кнопку START/STOP, начнется перезапись с того места, где Вы отпустили кнопку EDITSEARCH. Вы не можете контролировать звук.

Просмотр записи

Вы можете проверить последнюю записанную часть.

Нажмите кратковременно сторону – (⊜) кнопки EDITSEARCH в режиме ожидания. Последние несколько секунд записанной части будут воспроизведены и воспроизведение остановится. Вы можете контролировать звук через акустическую систему, головные телефоны (только модель CCD-TRV87E) или наушники (только модель CCD-TRV37E/TRV48E/TRV57E/TRV67E).

— Playback – Basics —

Playing back a tape

You can monitor the playback picture on the LCD screen or in the viewfinder. If you close the LCD panel, you can monitor the playback picture in the viewfineder. You can control playback using the Remote Commander supplied with your camcorder. (CCD-TRV48E/TRV57E/TRV67E/TRV87E only)

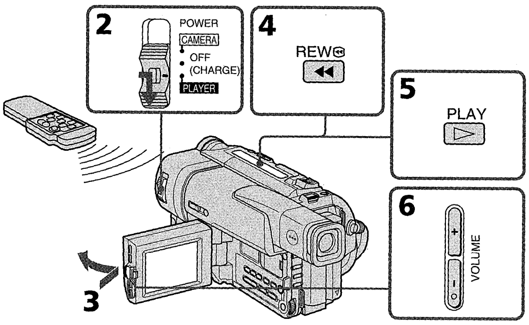
(1) Install the power source and insert the recorded tape.
(2) Set the POWER switch to PLAYER while pressing the small green button.
(3) Open the LCD panel while pressing OPEN.
(4) Press ◀◀ to rewind the tape.
(5) Press ▶ to start playback.
(6) To adjust the volume, press either of the two buttons on VOLUME. The speaker on your camcorder is silent when the LCD panel is closed.

— Воспроизведение – Основные положения —

Воспроизведение ленты

Вы можете контролировать воспроизводимое изображение на экране ЖКД или в видоискателе. Если Вы закроете панель ЖКД Вы можете контролировать воспроизводимое изображение в видоискателе. Вы можете контролировать воспроизведение с использованием пульта дистанционного управления, прилагаемого к Вашей видеокамере (только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E).

(1) Установите источник питания и вставьте записанную ленту.
(2) Нажав маленькую зеленую кнопку, установите переключатель POWER в положение PLAYER.
(3) Нажав кнопку OPEN, откройте панель ЖКД.
(4) Нажмите кнопку ◀◀ для ускоренной перемотки ленты назад.
(5) Нажмите кнопку ▶ для включения воспроизведения.
(6) Для регулировки громкости нажимайте одну из двух кнопок VOLUME. Если панель ЖКД на Вашей видеокамере закрыта, динамик не будет работать.



To stop playback
Press ■.

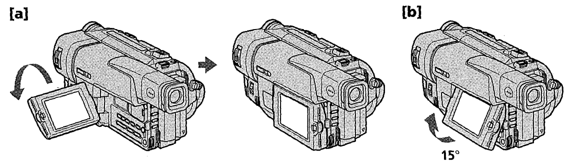
Для остановки воспроизведения
Нажмите кнопку ■.

Playing back a tape

When monitoring on the LCD screen
You can turn the LCD panel over and move it back to the camcorder body with the LCD screen facing out **[a]**. You can adjust the angle of the LCD panel by lifting the LCD panel up by 15 degrees **[b]**.

Воспроизведение ленты

Во время контроля на экране ЖКД
Вы можете повернуть панель управления и придвинуть ее обратно на место к корпусу видеокамеры, так что экран ЖКД будет обращен наружу **[a]**. Вы можете отрегулировать угол панели ЖКД, подняв панель ЖКД вверх на 15 градусов **[b]**.

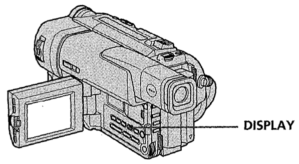


To control the display of the screen indicators

Press DISPLAY on your camcorder or the Remote Commander (CCD-TRV48E/TRV57E/TRV67E/TRV87E only) supplied with your camcorder.
The indicators appear on the LCD screen.
To make the indicators disappear, press DISPLAY again.

Для управления дисплеем экранных индикаторов

Нажмите кнопку DISPLAY на Вашей видеокамере или на пульте дистанционного управления (только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E)., который прилагается к Вашей видеокамере.
На экране ЖКД появятся индикаторы.
Для того, чтобы индикаторы исчезли, нажмите еще раз кнопку DISPLAY.



Playing back a tape

Various playback modes

To operate video control buttons, set the POWER switch to PLAYER.

To view a still picture (playback pause)
Press ❚❚ during playback. To resume playback, press ❚❚ or ▶.

To advance the tape
Press ▶▶ in the stop mode. To resume normal playback, press ▶.

To rewind the tape
Press ◀◀ in the stop mode. To resume normal playback, press ▶.

To locate a scene monitoring the picture (picture search)
Keep pressing ◀◀ or ▶▶ during playback. To resume normal playback, release the button.

To monitor the high-speed picture while advancing or rewinding the tape (skip scan)
Keep pressing ◀◀ while rewinding or ▶▶ while advancing the tape. To resume rewinding or advancing, release the button.

To view the picture at slow speed (slow playback)
– CCD-TRV48E/TRV57E/TRV67E/TRV87E only
Press ❙▶ on the Remote Commander during playback. To resume normal playback, press ▶.

To search the last scene recorded (END SEARCH)
Press END SEARCH in the stop mode. The last 5 seconds of the recorded section plays back and stops.

Воспроизведение ленты

Переменные режимы воспроизведения

Для управления кнопками видеоконтроля, установите переключатель POWER в положение PLAYER.

Для просмотра неподвижного изображения (пауза воспроизведения)
Нажмите во время воспроизведения кнопку ❚❚. Для возобновления обычного воспроизведения нажмите кнопку ❚❚ или кнопку ▶.

Для ускоренной перемотки ленты вперед
Нажмите в режиме остановки кнопку ▶▶. Для возобновления обычного воспроизведения нажмите кнопку ▶.

Для ускоренной перемотки ленты назад
Нажмите в режиме остановки кнопку ◀◀. Для возобновления обычного воспроизведения нажмите кнопку ▶.

Для обнаружения эпизода при контроле изображения (поиск изображения)
Держите нажатой кнопку ◀◀ или ▶▶ во время воспроизведения. Для возобновления обычного воспроизведения отпустите кнопку.

Для контроля изображения на высокой скорости во время ускоренной перемотки ленты вперед или назад (поиск методом прогона)
Держите нажатой кнопку ◀◀ во время ускоренной перемотки ленты назад или кнопку ▶▶ во время ускоренной перемотки ленты вперед. Для возобновления обычной перемотки ленты вперед или назад отпустите кнопку.

Для просмотра изображения на медленной скорости (замедленное воспроизведение)
– только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E
Нажмите во время воспроизведения кнопку ❙▶ на пульте дистанционного управления. Для возобновления обычного воспроизведения нажмите кнопку ▶.

Для поиска последнего записанного эпизода (END SEARCH)
Нажмите в режиме остановки кнопку END SEARCH. Будут воспроизведены последние 5 секунд записанной части, и воспроизведение остановится.

Playing back a tape

In the various playback modes
Sound is muted.

When the playback pause mode lasts for 5 minutes
Your camcorder automatically enters the stop mode. To resume playback, press ▶.

If slow playback lasts for about 1 minute (CCD-TRV48E/TRV57E/TRV67E/TRV87E only)
Your camcorder automatically returns to normal speed.

When you play back a tape recorded in the LP mode
Noise may appear during playback pause mode, slow playback (CCD-TRV48E/TRV57E/TRV67E/TRV87E only) or picture search.

The tapes recorded in the Hi8 format (CCD-TRV37E/TRV48E/TRV57E only)
You can play back the tapes recorded in the Hi8 video system on your camcorder.

Воспроизведение ленты

В переменных режимах воспроизведения
Звук будет приглушен.

Если режим паузы воспроизведения продлится 5 минут
Ваша видеокамера автоматически войдет в режим остановки. Для возобновления воспроизведения воспроизведения нажмите кнопку ▶.

Если замедленное воспроизведение продлится около 1 минуты (только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E).
Ваша видеокамера автоматически переключится на нормальную скорость.

При воспроизведении ленты, записанной в режиме LP
В режиме паузы воспроизведения, замедленного воспроизведения (только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E) или поиска изображения могут появиться помехи.

Ленты, записанные в формате Hi8 (только модель CCD-TRV37E/TRV48E/TRV57E)
Вы можете воспроизводить на Вашей видеокамере ленты, записанные в видеосистеме Hi8.

Viewing the recording on TV

Connect your camcorder to your TV or VCR with the A/V connecting cable supplied with your camcorder to watch the playback picture on the TV screen. You can operate the playback control buttons in the same way as when you monitor playback pictures on the LCD screen. When monitoring the playback picture on the TV screen, we recommend that you power your camcorder from the mains using the AC power adaptor (p. 19). Refer to the operating instructions of your TV or VCR.

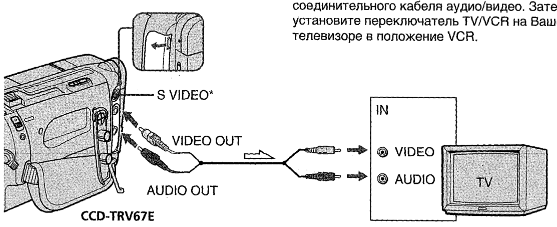
Open the jack cover. Connect your camcorder to the TV using the A/V connecting cable. Then, set the TV/VCR selector on the TV to VCR.

Просмотр записи на экране телевизора

Подсоедините Вашу видеокамеру к Вашему телевизору или КВМ с помощью соединительного кабеля аудио/видео, который прилагается к Вашей видеокамере для просмотра воспроизводимого изображения на экране телевизора. Вы можете оперировать кнопками управления воспроизведением таким же способом, как при управлении воспроизводимым изображением на экране ЖКД. При управлении воспроизводимым изображением на экране телевизора рекомендуется подключить питание к Вашей видеокамере от сетевой розетки с помощью сетевого адаптера переменного тока (стр. 19). См. инструкцию по эксплуатации Вашего телевизора или КВМ.

Откройте крышку гнезд. Подсоедините Вашу видеокамеру к телевизору с помощью соединительного кабеля аудио/видео. Затем, установите переключатель TV/VCR на Вашем телевизоре в положение VCR.

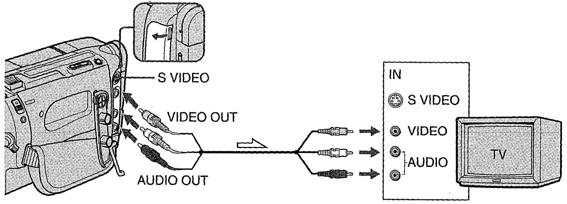
CCD-TRV37E/TRV48E/TRV57E/TRV67E



⇨ : Signal flow/Передача сигнала

* CCD-TRV67E only/только модель CCD-TRV67E

CCD-TRV87E



⇨ : Signal flow/Передача сигнала

Viewing the recording on TV

If your TV is already connected to a VCR

Connect your camcorder to the LINE IN input on the VCR by using the A/V connecting cable supplied with your camcorder. Set the input selector on the VCR to LINE.

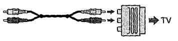
If your TV or VCR is a monaural type

– CCD-TRV87E only

Connect the yellow plug for video and the white plug for audio on both your camcorder and the TV or the VCR (you do not connect the red plug). With this connection, the sound is monaural.

If your TV/VCR has a 21-pin connector (EUROCONNECTOR)

Use the 21-pin adaptor supplied with your camcorder.



To connect to a TV or VCR without Video/Audio input jacks

Use a PAL system RFU adaptor (not supplied). Refer to the operating instructions of your TV or VCR and the RFU adaptor. With an RFU adaptor, the sound is monaural even on stereo models.

If your TV or VCR has an S video jack (CCD-TRV67E/TRV87E only)

Connect using an S video cable (not supplied) to obtain high-quality pictures. With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable. Connect the S video cable (not supplied) to the S video jacks on both your camcorder and the TV or the VCR.

Monitoring the picture from a TV or VCR (CCD-TRV87E only)

You can monitor the picture on the LCD screen. Connect your camcorder to the outputs on the TV or VCR.

Просмотр записи на экране телевизора

Если Ваш телевизор уже подсоединен к КВМ

Подсоедините Вашу видеокамеру к входному гнезду LINE IN на КВМ с помощью соединительного кабеля аудио/видео, который прилагается к Вашей видеокамере. Установите селектор входного сигнала на КВМ в положение LINE.

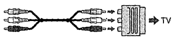
Если Ваш телевизор или КВМ монофонического типа

– Только модель CCD-TRV87E

Подсоедините желтый штекер для видеосигнала и белый штекер для аудиосигнала к Вашей видеокамере и телевизору или КВМ (Вам не нужно подсоединять красный штекер).
При данном соединении звук будет монофоническим.

Если в Вашем телевизоре/КВМ имеется 21-штырьковый разъем (EUROCONNECTOR)

Используйте 21-штырьковый, прилагаемый к Вашему компьютеру.



Для подсоединения к Вашему телевизору или КВМ без входных гнезд аудио/видео

Используйте ВЧ-адаптер системы PAL (не прилагается). Смотрите инструкцию по эксплуатации Вашего телевизора или КВМ и ВЧ-адаптера. При использовании ВЧ-адаптера звук будет монофоническим даже на стереофонических моделях.

Если в Вашем телевизоре или КВМ имеется гнездо S видео (только модель CCD-TRV67E/TRV87E)

Выполните соединение с помощью кабеля S видео (не прилагается) для получения высококачественного изображения. При данном соединении Вам не нужно подсоединять желтый штекер (видео) соединительного кабеля аудио/видео. Подсоедините кабель S видео (не прилагается) к гнездам S видео на Вашей видеокамере и Вашем телевизоре или КВМ.

Контроль изображения от телевизора или КВМ (только модель CCD-TRV87E)

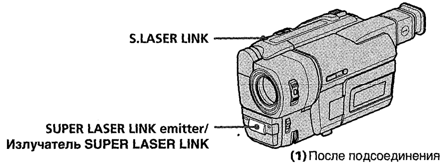
Вы можете контролировать изображение на экране ЖКД. Подсоедините Вашу видеокамеру к выходным гнездам на телевизоре или КВМ.

Viewing the recording on TV

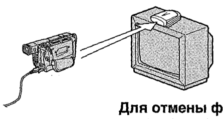
Using the AV cordless IR receiver

– CCD-TRV87E only

Once you connect the AV cordless IR receiver (not supplied) to your TV or VCR, you can easily view the picture on your TV. For details, refer to the operating instructions of the AV cordless IR receiver.



(1) After connecting your TV and AV cordless IR receiver, set the POWER switch on the AV cordless IR receiver to ON.
(2) Turn the TV on and set the TV/VCR selector on the TV to VCR.
(3) Press S.LASER LINK. The lamp of S.LASER LINK lights up.
(4) Press ► on your camcorder to start playback.
(5) Point the SUPER LASER LINK emitter at the AV cordless IR receiver. Adjust the position of your camcorder and the AV cordless IR receiver to obtain clear playback pictures.



To cancel the super laser link function

Press S.LASER LINK. The lamp on the S.LASER LINK button goes out.

If you turn the power off

Super laser link turns off automatically.

Note

When super laser link is activated (the S.LASER LINK button is lit), your camcorder consumes power. Press S.LASER LINK to turn off the super laser link function when it is not needed.

Просмотр записи на экране телевизора

Использование беспроводного ИК аудиовидеоприемника

– Только модель CCD-TRV87E

После подсоединения беспроводного ИК аудиовидеоприемника к Вашему телевизору (не прилагается) Вы можете легко наблюдать изображение на экране Вашего телевизора. Подробные сведения содержатся в инструкции по эксплуатации беспроводного ИК аудиовидеоприемника.

(1) После подсоединения к Вашему телевизору беспроводного ИК аудиовидеоприемника установите переключатель POWER на беспроводном ИК аудиовидеоприемнике в положение ON.
(2) *Включите телевизор и установите селектор* TV/VCR на телевизоре в положение VCR.
(3) Нажмите кнопку S.LASER LINK. Высветится лампочка S.LASER LINK.
(4) Нажмите кнопку ► на Вашей видеокамере для начала включения воспроизведения.
(5) Направьте излучатель SUPER LASER LINK на беспроводный ИК аудиовидео-приемник. Отрегулируйте положение Вашей видеокамеры и беспроводного ИК аудиовидеоприемника для получения четкого воспроизводимого изображения.

Для отмены функции лазерного суперканала передачи сигналов

Нажмите кнопку S.LASER LINK. Лампочка на кнопке S.LASER LINK погаснет.

Если Вы выключите питание

Лазерный суперканал передачи сигналов выключится автоматически.

Примечание

При включенном лазерном канале передачи сигналов (при этом высвечивается кнопка S.LASER LINK) Ваша видеокамера потребляет питание. Нажмите кнопку S.LASER LINK для выключения функции лазерного суперканала передачи сигналов, если она не требуется.

— Advanced Recording Operations —

Recording a still image on a tape – Tape Photo recording

– CCD-TRV87E only

You can record a still picture like a photograph. This mode is useful when you want to record a picture such as a photograph or when you print a picture using a video printer (not supplied).

— Усовершенствованные операции съемки —

Запись неподвижного изображения на ленту – фотосъемка на ленту

Только модель CCD-TRV87E

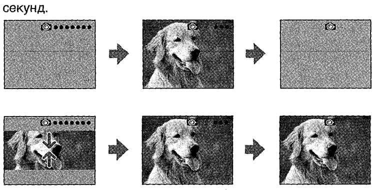
Вы можете записывать неподвижное изображение подобно фотографии. Данный режим полезен, если Вы хотите записывать изображение в виде фотоснимка или же при выполнении отпечатков с помощью видеопринтера (не прилагается).

NORMAL PHOTO/ ОБЫЧНОЕ ФОТО

This mode records a still picture for about seven seconds./
В этом режиме неподвижное изображение записывается около семи секунд.

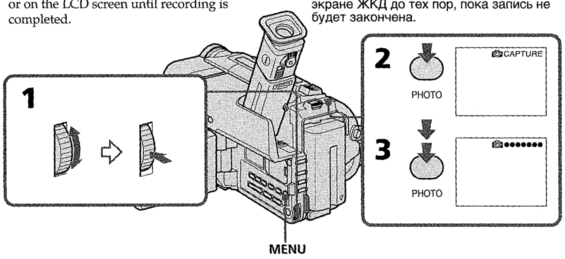
FADE PHOTO/ ФОТО С ВВЕДЕНИЕМ/ ВЫВЕДЕНИЕМ

SHUTTER PHOTO/ ФОТО С ЗАТВОРОМ



(1) While your camcorder is in the standby mode, select the photo mode in the menu settings (p. 70).
(2) Keep pressing PHOTO lightly until a still picture appears. The CAPTURE indicator appears. Recording does not start yet.
To change the still picture, release PHOTO, select a still picture again, and then press and hold PHOTO lightly.
(3) Press PHOTO deeper.
The still picture in the viewfinder or on the LCD screen is recorded for about seven seconds. The sound during those seven seconds is also recorded.
The still image is displayed in the viewfinder or on the LCD screen until recording is completed.

(1) В то время, когда Ваша видеокамера находится в режиме ожидания, выберите фоторежим в установках меню (стр. 70).
(2) Держите слегка нажатой кнопку PHOTO до тех пор, пока не появится неподвижное изображение. Появится индикация CAPTURE. Запись пока еще не началась.
Для изменения неподвижного изображения отпустите кнопку PHOTO, выберите неподвижное изображение снова, а затем нажмите и держите слегка нажатой кнопку PHOTO.
(3) Нажмите кнопку PHOTO сильнее.
Неподвижное изображение в видоискателе или на экране ЖКД будет записываться около семи секунд. В течение этих семи секунд будет записываться и звук.
Неподвижное изображение будет отображаться в видоискателе или на экране ЖКД до тех пор, пока запись не будет закончена.



Recording a still image on a tape – Tape Photo recording

Notes

- During tape photo recording, you cannot change the mode or setting of the following functions:
  - – Digital effect
  - – Fader
  - – PROGRAM AE
  - – Picture effect
  - – Exposure
  - – Wide mode
  - – Backlight
  - – Super NightShot
- The PHOTO button does not work:
  - – while the digital effect function is set or in use.
  - – while the fader function is in use.
- When recording a still picture, do not shake your camcorder. The picture may fluctuate.

To use the tape photo recording function during normal CAMERA recording

Press PHOTO deeper. The still picture is then recorded for about seven seconds and your camcorder returns to the standby mode. You cannot select another still picture.

Запись неподвижного изображения на ленту – фотосъемка на ленту

Примечания

- Во время фотосъемки на ленту Вы не можете изменять режим или установку следующих функций:
  - – Цифровой эффект
  - – Фейдер
  - – PROGRAM AE
  - – Эффект изображения
  - – Экспозиция
  - – Широкоэкранный режим
  - – Задняя подсветка
  - – Ночная суперсъемка
- Кнопка PHOTO не работает:
  - – если установлена или используется функция цифрового эффекта.
  - – если используется функция фейдера.
- При записи неподвижного изображения не *трясите Вашу видеокамеру. Изображение* может быть неустойчивым.

Для использования функции фотосъемки на ленту во время обычной записи в режиме CAMERA

Нажмите кнопку PHOTO сильнее. Неподвижное изображение будет записываться около семи секунд, а затем видеокамера вернется в режим ожидания. Вы не сможете при этом выбрать другое неподвижное изображение.

Recording a still image on a tape – Tape Photo recording

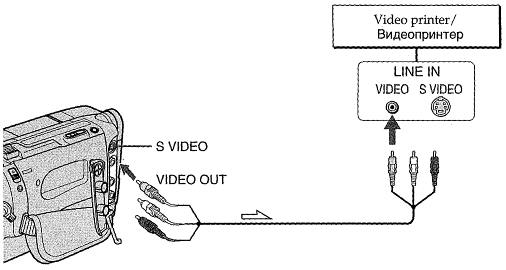
Запись неподвижного изображения на ленту — фотосъемка на ленту

Printing the still picture

You can print a still picture by using the video printer (not supplied). Connect the video printer using the A/V connecting cable supplied with your camcorder.
Connect the yellow plug of the cable to the video jack on both your camcorder the video printer. Refer to the operating instructions of the video printer as well.

Печатание неподвижного изображения

Вы можете напечатать неподвижное изображение с помощью видеопринтера (не прилагается). Подсоедините видеопринтер с использованием соединительного кабеля аудио/видео, прилагаемого к Вашей видеокамере.
Подсоедините желтый разъем кабеля к видеогнезду на Вашей видеокамере и видеопринтере. Смотрите также инструкцию по эксплуатации видеопринтера.



⇨ : Signal flow/Передача сигнала

If the video printer is equipped with S video input
Use the S video connecting cable (not supplied). Connect it to the S VIDEO jack and the S video input of the video printer.

Если видеопринтер оснащен входом S-видео
Используйте соединительный кабель S-видео (не прилагается). Подсоедините его к гнезду S-VIDEO и входу S-видео на видеопринтере.

Using the wide mode

You can record a cinema-like picture (CINEMA) or a 16:9 wide picture to watch on the 16:9 wide-screen TV (16:9FULL). Refer to the operating instructions of your TV.

CINEMA
Black bands appear on the screen during recording in the CINEMA mode **[a]**, playing back on a normal TV **[b]** or a wide-screen TV **[c]**. If you set the screen mode of the wide-screen TV to the zoom mode, a picture without black bands appears **[d]**.

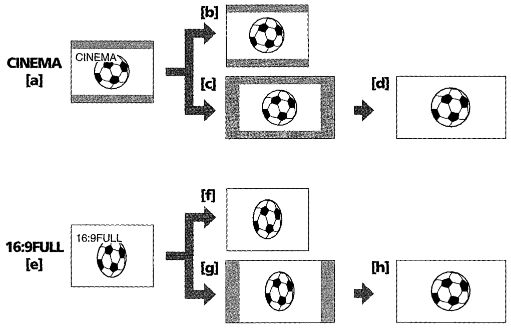
16:9FULL
The picture during recording in the 16:9FULL mode **[e]**, or playing back on a normal TV **[f]** or a wide-screen TV **[g]** is horizontally compressed. If you set the screen mode of the wide-screen TV to the full mode, you can watch pictures of normal images **[h]**.

Использование широко-экранного режима

Вы можете записывать изображение наподобие кино (CINEMA) или широкоэкранное изображение 16:9 для просмотра на широкоэкранном телевизоре 16:9 (16:9FULL). Обратитесь к инструкции по эксплуатации Вашего телевизора.

CINEMA
Черные полосы появятся на экране во время записи в режиме CINEMA **[a]**, воспроизведения на обычном телевизоре **[b]** или на широкоэкранном телевизоре **[c]**. Если Вы установите экранный режим на широкоэкранном телевизоре в режим масштабирования, то изображение появится без черных полос **[d]**.

16:9FULL
Изображение во время записи в режиме 16:9 FULL **[e]**, либо во время воспроизведения на обычном телевизоре **[f]** или широкоэкранном телевизоре **[g]** будет сжато по горизонтали. Если Вы установите экранный режим широкоэкранного телевизора в полноэкранный режим, Вы можете просматривать изображения обычных съемок **[h]**.

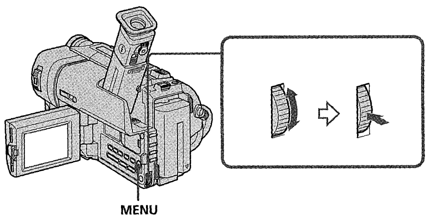


Using the wide mode

In the standby mode, set 16:9WIDE to CINEMA or 16:9FULL in the menu settings (p. 70).

Использование широкоэкранного режима

В режиме ожидания установите 16:9WIDE в положение CINEMA или 16:9FULL в установках меню (стр. 70).



To cancel the wide mode
Set 16:9WIDE to OFF in the menu settings.

If the wide mode is set to 16:9FULL (CCD-TRV57E/TRV67E/TRV87E only)
The SteadyShot function does not work. If you select 16:9FULL in the menu settings when the SteadyShot function is working, "✋" flashes and the SteadyShot function does not function.

In the wide mode
You cannot select the old movie function with DIGITAL EFFECT (CCD-TRV87E only) and the bounce function with FADER.

Date or time indicator
When you record in the 16:9FULL mode, the date or time indicator will be widened on wide-screen TVs.

During recording
You cannot change or cancel the wide mode. When you cancel the wide mode, set your camcorder to the standby mode and then set 16:9WIDE to OFF.

Для отмены широкоэкранного режима
Установите команду 16:9WIDE в положение OFF в установках меню.

Если широкоэкранный режим установлен в положение 16:9FULL (только модель CCD-TRV57E/TRV67E/TRV87E)
Функция устойчивой съемки не работает. Если Вы выберите команду 16:9FULL в установках меню в то время, когда работает функция устойчивой съемки, начнет мигать индикация "✋", и функция устойчивой съемки работать не будет.

В широкоэкранном режиме
Вы не можете выбрать функцию старинного кино с помощью команды DIGITAL EFFECT (только модель CCD-TRV87E) и функцию перескакивания с помощью команды FADER.

Индикатор даты или времени
Если Вы выполняете запись в режиме 16:9FULL, индикатор даты или времени расширится на широкоэкранном телевизоре.

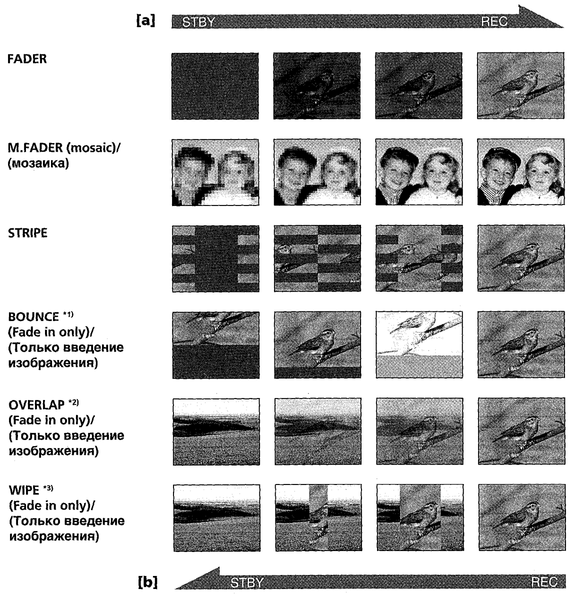
Во время записи
Вы не можете изменить или отменить широкоэкранный режим.
Для отмены широкоэкранного режима установите Вашу видеокамеру на режим ожидания, а затем установите 16:9WIDE на OFF.

Using the fader function

You can fade in or out to give your recording a professional appearance.

Использование функции фейдера

Вы можете выполнять плавное введение и выведение изображения, чтобы придать Вашей съемке профессиональный вид.



MONOTONE
When fading in, the picture gradually changes from black-and-white to colour.
When fading out the picture gradually changes from colour to black-and-white.

*1) You can use this function only when D ZOOM is set to OFF.
*2) CCD-TRV87E only
*3) CCD-TRV87E only. The sound does not wipe away.

MONOTONE
При введении изображение будет постепенно изменяться от черно-белого до цветного.
При выведении изображение будет постепенно изменяться от цветного до чернобелого.

*1) Вы можете использовать эту функцию только при установке команды D ZOOM на OFF.
*2) Только модель CCD-TRV87E
*3) Только модель CCD-TRV87E. Звук при этом не убирается.

Using the fader function

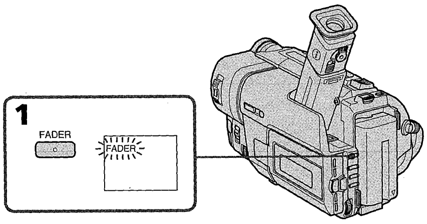
(1) When fading in [a]
In the standby mode, press FADER until the desired fader indicator flashes.
When fading out [b]
In the recording mode, press FADER until the desired fader indicator flashes.
The indicator changes as follows:
FADER → M.FADER → STRIPE → BOUNCE → MONOTONE → OVERLAP (CCD-TRV87E only) → WIPE (CCD-TRV87E only) → no indicator
The last selected fader mode is indicated first of all.

(2) Press START/STOP. The fader indicator stops flashing.

Использование функции фейдера

(1) При введении изображения [a]
В режиме ожидания, нажимайте кнопку FADER до тех пор, пока не начнет мигать нужный индикатор фейдера.
При выведении изображения [b]
В режиме записи, нажимайте кнопку FADER до тех пор, пока не начнет мигать нужный индикатор фейдера.
Индикатор будет изменяться следующим образом:
FADER → M.FADER → STRIPE → BOUNCE → MONOTONE → OVERLAP (только модель CCD-TRV87E) → WIPE (только модель CCD-TRV87E) → без индикатора
Последний из выбранных режимов фейдера отображается первым.

(2) Нажмите кнопку START/STOP. Индикатор фейдера перестанет мигать.



To cancel the fader function

After the fade in/out is carried out : Your camcorder automatically returns to the normal mode.
Before the fade in/out is carried out : Before pressing START/STOP, press FADER until the indicator disappears.

Для отмены функции фейдера

После того, как выполнено введение/выведение изображения: Ваша видеокамера автоматически вернется в обычный режим.
Перед тем, как выполнить введение/выведение изображения: Перед тем, как нажать кнопку START/STOP, нажимайте кнопку FADER до тех пор, пока не исчезнет индикатор.

Using the Fader function

Note (CCD-TRV87E only)
You cannot use the following functions while using the fader function. Also, you cannot use the fader function while using the following functions.
- Digital effect
- Low lux mode of PROGRAM AE (Overlap/Wipe function only)
- Super NightShot
- Tape Photo recording

The date, time indicator and title do not fade in or fade out
Erase them before operating the fader function if they are not needed.

If you do not record anything before operating the wipe or overlap function (CCD-TRV87E only)
Your camcorder stores the image on the tape. As the image is being stored, the WIPE or OVERLAP indicator flashes quickly, and the picture you are shooting disappears from the viewfinder. Depending on the tape condition, the picture may not be recorded clearly.

While using the bounce function, you cannot use the following functions:
- Exposure
- Focus
- Zoom
- Picture effect

Note on the bounce function
The BOUNCE indicator does not appear in the following mode or functions:
- D ZOOM is set to the mode other than OFF in the menu settings
- Wide mode
- Picture effect
- PROGRAM AE

Использование функции фейдера

Примечание (только модель CCD-TRV87E)
Вы не можете использовать следующие функции во время использования функции фейдера. Также, Вы не можете использовать функцию фейдера во время использования следующих функций.
- Цифровой эффект
- Режим низкой освещенности PROGRAM AE (только функция наложения/вытеснения изображения шторкой)
- Ночная суперсъемка
- Фотосъемка на ленту

Индикатор даты, времени и титр не вводятся и не выводятся вместе с изображением
Удалите их перед тем, как включить функцию фейдера, если они не нужны.

Если Вы не записывали ничего перед включением функции вытеснения шторкой или наложения изображения (только модель CCD-TRV87E)
Ваша видеокамера хранит изображение на ленте. Во время сохранения изображения индикатор WIPE или OVERLAP будет быстро мигать, а изображение, которое Вы снимаете, исчезнет в видоискателе. В зависимости от состояния ленты, изображение может быть записано нечетко.

Во время использования функции перескакивания Вы не можете использовать следующие функции:
- Экспозиция
- Фокусировка
- Трансфокация
- Эффект изображения

Примечание по функции перескакивания
Индикатор BOUNCE не появляется в следующих режимах или при использовании следующих функций:
- Команда D ZOOM установлена на режим, отличный от OFF в установках меню
- Широкоэкранный режим
- Эффект изображения
- PROGRAM AE

Using special effects – Picture effect

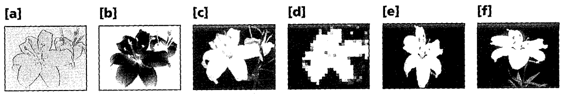
You can digitally process images to obtain special effects like those in films or on the TV.

PASTEL [a] :	The contrast of the picture is emphasized, and the picture looks like an animated cartoon.
NEG. ART [b] :	The colour and brightness of the picture is reversed.
SEPIA :	The picture is sepia.
B&W :	The picture is monochrome (black-and-white).
SOLARIZE [c] :	The light intensity is clearer, and the picture looks like an illustration.
MOSAIC [d] :	The picture is mosaic.
SLIM [e] :	The picture expands vertically.
STRETCH [f] :	The picture expands horizontally.

Использование специальных эффектов – Эффект изображения

Вы можете выполнять обработку изображения цифровым методом для получения специальных эффектов, как в кинофильмах или на экранах телевизоров.

PASTEL [a] :	Подчеркивается контрастность изображения, которому придается мультипликационный вид.
NEG. ART [b] :	Цвет и яркость изображения будут негативными.
SEPIA :	Изображение будет в цвете сепии.
B&W :	Изображение будет монохроматическим (черно-белым).
SOLARIZE [c] :	Яркость света будет усиленной, а изображение будет выглядеть как иллюстрация.
MOSAIC [d] :	Изображение будет мозаическим.
SLIM [e] :	Изображение растянется по вертикали.
STRETCH [f] :	Изображение растянется по горизонтали.



Using special effects – Picture effect

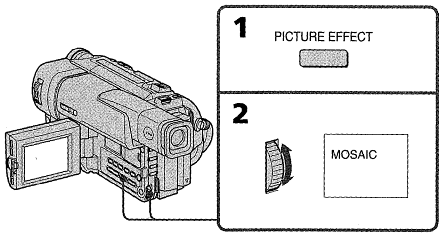
(1) Press PICTURE EFFECT in the standby or recording mode.
The picture effect indicator appears.

(2) Turn the SEL/PUSH EXEC dial to select the desired picture effect mode.
The indicator changes as follows:
PASTEL ←→ NEG.ART ←→ SEPIA ←→ B&W ←→ SOLARIZE ←→ MOSAIC ←→ SLIM ←→ STRETCH

Использование специальных эффектов – Эффект изображения

(1) Нажмите кнопку PICTURE EFFECT в режиме ожидания или режиме записи. Появится индикатор эффекта изображения.

(2) Поверните диск SEL/PUSH EXEC для выбора режима нужного эффекта изображения.
Индикатор будет изменяться следующим образом:
PASTEL ←→ NEG.ART ←→ SEPIA ←→ B&W ←→ SOLARIZE ←→ MOSAIC ←→ SLIM ←→ STRETCH



To turn the picture effect function off

Press PICTURE EFFECT.

Для выключения функции эффекта изображения

Нажмите кнопку PICTURE EFFECT.

While using the picture effect function (CCD-TRV87E only)
You cannot select the old movie mode with DIGITAL EFFECT.

When you turn the power off
Your camcorder automatically returns to the normal mode.

При использовании функции эффекта изображения (только модель CCD-TRV87E)
Вы не можете выбрать режим старинного кино с помощью команды DIGITAL EFFECT.

Если Вы выключите питание
Ваша видеокамера автоматически вернется в обычный режим.

Using special effects – Digital effect

Использование специальных эффектов – Цифровой эффект

– CCD-TRV87E only

You can add special effects to recorded pictures using the various digital functions. The sound is recorded normally.

STILL
You can record a still picture so that it is superimposed on a moving picture.

FLASH (FLASH MOTION)
You can record still pictures successively at constant intervals.

LUMI. (LUMINANCEKEY)
You can swap a brighter area in a still picture with a moving picture.

TRAIL
You can record the picture so that an incidental image like a trail is left.

SLOW SHTR (SLOW SHUTTER)
You can slow down the shutter speed. The slow shutter mode is good for recording dark pictures more brightly.

OLD MOVIE
You can add an old movie type atmosphere to pictures. Your camcorder automatically sets the wide mode to CINEMA, picture effect to SEPIA, and the appropriate shutter speed.

– Только модель CCD-TRV87E

Вы можете добавлять специальные эффекты к записываемому изображению с помощью разных цифровых функций. Записываемый звук будет обычным.

STILL
Вы можете записывать неподвижное изображение, которое можно налагать на подвижное изображение.

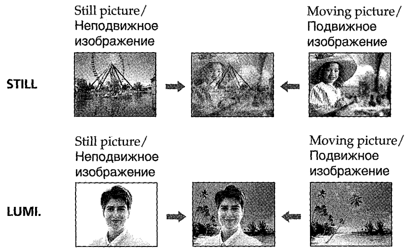
FLASH (FLASH MOTION)
Вы можете записывать неподвижные изображения в последовательности через определенные интервалы.

LUMI. (LUMINANCEKEY)
Вы можете изменять яркие места на неподвижном изображении на подвижные изображения.

TRAIL
Вы можете записывать изображение с эффектом запаздывания.

SLOW SHTR (SLOW SHUTTER)
Вы можете замедлить скорость затвора. Режим медленного затвора является подходящим для записи темных изображений в более ярком свете.

OLD MOVIE
Вы можете привносить атмосферу старинного кино в изображения. Ваша видеокамера будет автоматически устанавливать широкоэкранный режим в положение CINEMA, эффект изображения в положение SEPIA, и выставлять соответствующую скорость затвора.



Using special effects – Digital effect

Использование специальных эффектов – Цифровой эффект

(1) While your camcorder is in the standby or recording mode, press DIGITAL EFFECT. The digital effect indicator appears.

(2) Turn the SEL/PUSH EXEC dial to select the desired digital effect mode.
The indicator changes as follows:
STILL ←→ FLASH ←→ LUMI. ←→ TRAIL ←→ SLOW SHTR ←→ OLD MOVIE

(3) Press the SEL/PUSH EXEC dial. The indicator lights up and the bars appear. In the STILL and LUMI. modes, the still picture is stored in memory.

(4) Turn the SEL/PUSH EXEC dial to adjust the effect as follows:

STILL – The rate of the still picture you want to superimpose on the moving picture
FLASH – The interval of flash motion
LUMI. – The colour scheme of the area in the still picture which is to be swapped with a moving picture
TRAIL – The vanishing time of the incidental image
SLOW SHTR – Shutter speed. The larger the shutter speed number, the slower the shutter speed
OLD MOVIE – No adjustment necessary

The more bars there are on screen, the stronger the digital effect. The bars appear in the following modes: STILL, FLASH, LUMI. and TRAIL.

(1) В то время, когда Ваша видеокамера находится в режиме ожидания или режиме записи, нажмите кнопку DIGITAL EFFECT. Появится индикатор цифрового эффекта.

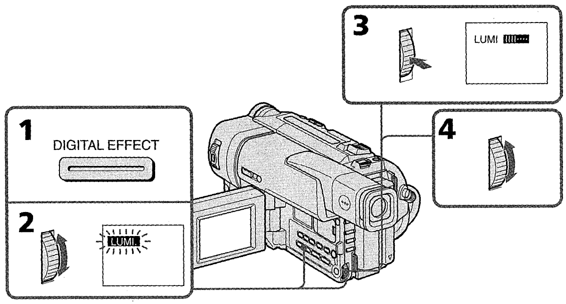
(2) Поверните диск SEL/PUSH EXEC для выбора режима нужного цифрового эффекта.
Индикатор будет изменяться следующим образом:
STILL ←→ FLASH ←→ LUMI. ←→ TRAIL ←→ SLOW SHTR ←→ OLD MOVIE

(3) Нажмите диск SEL/PUSH EXEC.
Высветится индикатор и появятся полосы. В режимах STILL и LUMI. неподвижное изображение будет сохранено в памяти.

(4) Поверните диск SEL/PUSH EXEC для регулировки эффекта Следующим образом.

STILL – Интенсивность неподвижного изображения, которое Вы хотите наложить на подвижное изображение
FLASH – Интервал прерывистого движения
LUMI. – Цветовая гамма участка на неподвижном изображении, который будет заменен на подвижное изображение
TRAIL – Время исчезания побочного изображения
SLOW SHTR – Скорость затвора. Чем больше величина скорости затвора, тем медленнее скорость затвора
OLD MOVIE – Не требуется никаких регулировок

Чем больше прямоугольников на экране, тем сильнее цифровой эффект. Прямоугольники появляются в следующих режимах: STILL, FLASH, LUMI. и TRAIL.



Using special effects – Digital Effect

Использование специальных эффектов – Цифровой эффект

To cancel the digital effect

Press DIGITAL EFFECT. The digital effect indicator disappears.

Notes

- The following functions do not work during digital effect:
  - Fader
  - Low lux mode of PROGRAM AE
  - Tape Photo recording
  - Super NightShot
- The following function does not work in the slow shutter mode:
  - Exposure
  - PROGRAM AE
- The following functions do not work in the old movie mode:
  - Exposure
  - Wide mode
  - Picture effect
  - PROGRAM AE

When you turn the power off
The digital effect will be automatically canceled.

When recording in the slow shutter mode
Auto focus may not be effective. Focus manually using a tripod.

Shutter speed

Shutter speed number	Shutter speed
SLOW SHTR 1	1/25
SLOW SHTR 2	1/12
SLOW SHTR 3	1/6
SLOW SHTR 4	1/3

Для отмены цифрового эффекта

Нажмите кнопку DIGITAL EFFECT. Индикатор цифрового эффекта исчезнет.

Примечания

- Следующие функции не работают при использовании цифрового эффекта:
  - Фейдер
  - Режим низкой освещенности PROGRAM AE
  - Фотосъемка на ленту
  - Ночная суперсъемка
- Следующие функции не работают в режиме медленного затвора:
  - Экспозиция
  - PROGRAM AE
- Следующие функции не работают в режиме старинного кино:
  - Экспозиция
  - Широкоэкранный режим
  - Эффект изображения
  - PROGRAM AE

При выключении питания
Цифровой эффект будет автоматически отменен.

При записи в режиме медленного затвора
Автоматическая фокусировка может быть не эффективной. Выполните фокусировку вручную, используя треногу.

Скорость затвора

Величина скорости затвора	Скорость затвора
SLOW SHTR 1	1/25
SLOW SHTR 2	1/12
SLOW SHTR 3	1/6
SLOW SHTR 4	1/3

Using the PROGRAM AE function

Использование функции PROGRAM AE

You can select PROGRAM AE (Auto Exposure) mode to suit your specific shooting requirements.

Spotlight mode
This mode prevents people's faces, for example, from appearing excessively white when shooting subjects lit by strong light in the theatre.

Soft portrait mode
This mode brings out the subject while creating a soft background for subjects such as people or flowers.

Sports lesson mode
This mode minimizes shake on fast-moving subjects such as in tennis or golf.

Beach & ski mode
This mode prevents people's faces from appearing dark in strong light or reflected light, such as at a beach in midsummer or on a ski slope.

Sunset & moon mode
This mode allows you to maintain atmosphere when you are recording sunsets, general night views, fireworks displays and neon signs.

Landscape mode
This mode is for when you are recording distant subjects such as mountains and prevents your camcorder from focusing on glass or metal mesh in windows when you are recording a subject behind glass or a screen.

Low lux mode (CCD-TRV87E only)
This mode makes subjects brighter in insufficient light.

Вы можете выбрать режим PROGRAM AE (автоматическая экспозиция) в соответствии со специфическими требованиями к съемке.

Режим прожекторного освещения
Данный режим предотвращает, к примеру, лица людей от появления в чрезмерно белом свете при выполнении съемки людей, освещенных сильным светом в театре.

Мягкий портретный режим
Этот режим позволяет выделить объект, создавая мягкий фон, и подходит для съемки, например, людей или цветов.

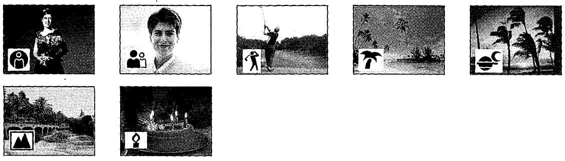
Режим спортивных состязаний
Этот режим позволяет минимизировать дрожание при съемке быстро движущихся предметов, например, при игре в теннис или гольф.

Пляжный и лыжный режим
Этот режим предотвращает появление темных лиц людей в зоне сильного света или отраженного света, например, на пляже в разгар лета или на снежном склоне.

Режим захода солнца и луны
Этот режим позволяет в точности отражать обстановку при съемке заходов солнца, общих ночных видов, фейерверков и неоновых реклам.

Ландшафтный режим
Этот режим позволяет выполнять съемку отдаленных объектов, таких как горы, например, и предотвращает фокусировку видеокамеры на стекло или металлическую решетку на окнах, когда Вы выполняете запись объектов позади стекла или решетки.

Режим низкой освещенности (только модель CCD-TRV87E)
Этот режим делает объекты ярче при недостаточном освещении.

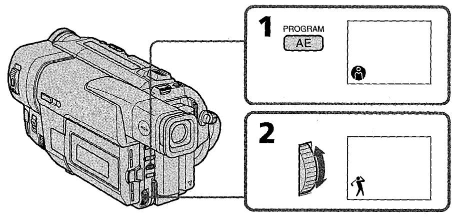


Using the PROGRAM AE function

(1) Press PROGRAM AE in the standby mode.
The PROGRAM AE indicator appears.
(2) Turn the SEL/PUSH EXEC dial to select the desired PROGRAM AE mode.
The indicator changes as follows:
◉ ↔ 👥 ↔ 🏌 ↔ 🌴 ↔ 🌅 ↔ 🏔 ↔ 🕯 (CCD-TRV87E only)

Использование функции PROGRAM AE

(1) Нажмите кнопку PROGRAM AE в режиме ожидания.
Появится индикатор PROGRAM AE.
(2) Поверните диск SEL/PUSH EXEC для выбора нужного режима PROGRAM AE.
Индикатор будет изменяться следующим образом:
◉ ↔ 👥 ↔ 🏌 ↔ 🌴 ↔ 🌅 ↔ 🏔 ↔ 🕯 (только модель CCD-TRV87E)



To turn the PROGRAM AE function off

Press PROGRAM AE.

Для выключения функции PROGRAM AE

Нажмите кнопку PROGRAM AE.

Using the PROGRAM AE function

Notes

- In the spotlight, sports lesson and beach & ski modes, you cannot take close-ups. This is because your camcorder is set to focus only on subjects in the middle to far distance.
- In the sunset & moon and landscape modes, your camcorder is set to focus only on distant subjects.
- The following functions do not work in the PROGRAM AE mode:
  - Slow shutter (CCD-TRV87E only)
  - Old movie (CCD-TRV87E only)
  - NightShot
  - Bounce
- The following functions do not work in the low lux mode (CCD-TRV87E only):
  - Digital effect
  - Overlap
  - Wipe
  - Exposure
- If you press PROGRAM AE when using the NightShot function, the PROGRAM AE indicator flashes and the PROGRAM AE function does not work.

If you are recording under a discharge tube such as a fluorescent lamp, sodium lamp or mercury lamp

Flickering or changes in colour may occur in the following modes. If this happens, turn the PROGRAM AE function off.
- Soft portrait mode
- Sports lesson mode

Использование функции PROGRAM AE

Примечания

- В режимах прожекторного освещения, спортивных состязаний, а также в пляжном и лыжном режиме Вы не можете выполнять съемку крупным планом. Это объясняется тем, что Ваша видеокамера настроена для фокусировки только на объекты, находящиеся на среднем и дальнем расстояниях.
- В режиме захода солнца и луны, а также в ландшафтном режиме Ваша видеокамера настроена на фокусировку только на дальние объекты.
- Следующие функции не работают в режиме PROGRAM AE:
  - Медленный затвор (только модель CCD-TRV87E)
  - Старинное кино (только модель CCD-TRV87E)
  - Ночная съемка
  - Перескакивание
- Следующие функции не работают в режиме низкой освещенности (только модель CCD-TRV87E):
  - Цифровой эффект
  - Наложение изображения
  - Вытеснение изображения шторкой
  - Экспозиция
- Если Вы нажмете кнопку PROGRAM AE во время использования функции ночной съемки, начнет мигать индикатор PROGRAM AE, и функция PROGRAM AE не будет работать.

Если Вы выполняете запись при освещении от газоразрядной лампы, как например, люминесцентной натриевой лампы или ртутной лампы

В следующих режимах может возникнуть мерцание или неустойчивые процессы. Если это произойдет, выключите функцию PROGRAM AE.
- Мягкий портретный режим
- Режим спортивных состязаний

Adjusting the exposure manually

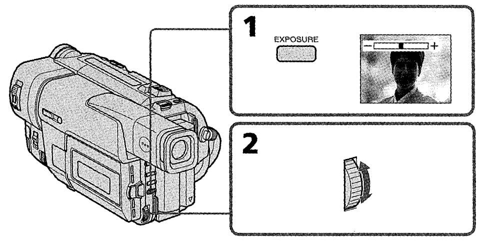
You can manually adjust and set the exposure. Adjust the exposure manually in the following cases:
- The subject is backlit
- Bright subject and dark background
- To record dark pictures (e.g. night scenes) faithfully

(1) Press EXPOSURE in the standby or recording mode.
The exposure indicator appears.
(2) Turn the SEL/PUSH EXEC dial to adjust the brightness.

Регулировка экспозиции вручную

Вы можете отрегулировать и установить экспозицию вручную.
Отрегулируйте экспозицию вручную в следующих случаях:
- Объект на фоне задней подсветки
- Яркий объект на темном фоне
- Для записи темных изображений (например, ночных сцен) с большой достоверностью

(1) Нажмите кнопку EXPOSURE в режиме ожидания или записи.
Появится индикатор экспозиции.
(2) Поверните диск SEL/PUSH EXEC для регулировки яркости.



To return to the automatic exposure mode

Press EXPOSURE again.

Note

When you adjust the exposure manually, the following function and modes do not work:
- Backlight
- Slow shutter (CCD-TRV87E only)
- Old movie (CCD-TRV87E only)

Your camcorder automatically returns to the automatic exposure mode:
- if you change the PROGRAM AE mode
- if you slide NIGHTSHOT to ON

Для возврата в режим автоматической экспозиции

Нажмите кнопку EXPOSURE еще раз.

Примечание

При выполнении регулировки вручную следующие функции и режимы не работают:
- Задняя подсветка
- Медленный затвор (только модель CCD-TRV87E)
- Старинное кино (только модель CCD-TRV87E)

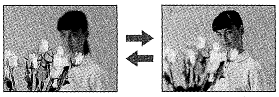
Ваша видеокамера автоматически возвращается к режиму автоматической экспозиции:
- если Вы изменяете режим PROGRAM AE
- если Вы переместите NIGHTSHOT в положение ON

Focusing manually

You can gain better results by manually adjusting the focus in the following cases:
- The autofocus mode is not effective when shooting
  - subjects through glass coated with water droplets
  - horizontal stripes
  - subjects with little contrast with backgrounds such as walls and sky
- When you want to change the focus from a subject in the foreground to a subject in the background
- Shooting a stationary subject when using a tripod

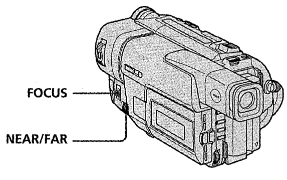
Фокусировка вручную

Вы можете получить лучшие результаты путем регулировки вручную в следующих случаях:
- Режим автоматической фокусировки является неэффективным при выполнении съемки
  - объектов через стекло, покрытое каплями воды
  - горизонтальных полос
  - объектов с малой контрастностью на таком фоне, как стена или небо
- Если Вы хотите выполнить изменение фокусировки объекта на переднем плане на объект на заднем плане
- При выполнении съемки стационарных объектов с использованием треноги



(1) Set FOCUS to MANUAL in the standby or recording mode. The ⊕ indicator appears.
(2) Turn NEAR/FAR to sharpen focus.

(1) Установите переключатель FOCUS в положение MANUAL в режиме ожидания или режиме записи. Появится индикатор ⊕.
(2) Поверните регулятор NEAR/FAR для получения четкой фокусировки.



To return to the autofocus mode

Set FOCUS to AUTO.

Для возвращения в режим автоматической фокусировки

Установите переключатель FOCUS в положение AUTO.

Focusing manually

To record distant subjects

When you press FOCUS down to INFINITY, the lens focuses on infinity and ▲ indicator appears. When you release FOCUS, your camcorder returns to the manual focus mode. Use this mode when your camcorder focuses on near objects even though you are trying to shoot a distant object.

To focus precisely

Adjust the zoom by first focusing at the "T" (telephoto) position and then shooting at the "W" (wide-angle) positon. This makes focusing easier.

When you shoot close to the subject

Focus at the end of the "W" (wide-angle) position.

☞ changes to the following indicators:

▲ when recording a distant subject.

● when the subject is too close to focus on.

Фокусировка вручную

Для съемки удаленных объектов

Если Вы нажмете вниз кнопку FOCUS в положение INFINITY, объектив выполнит фокусировку на бесконечность и появится индикатор ▲. Если Вы отпустите кнопку FOCUS, Ваша видеокамера вернется в режим ручной фокусировки. Используйте этот режим, если Ваша видеокамера выполняет фокусировку на ближние объекты, даже если Вы пытаетесь выполнить съемку отдаленного объекта.

Для точной фокусировки

Отрегулируйте сперва вариообъектив для фокусировки в положение "T" (телефото), а затем выполняйте съемку в положении "W" (широкого угла). Это облегчит фокусировку.

Если Вы выполняете съемку вблизи объекта

Выполните фокусировку в конце положения "W" (широкого угла).

☞ изменяется на следующие индикаторы:

▲ при записи удаленного объекта.

● если объект находится слишком близко, чтобы выполнить фокусировку на него.

Superimposing a title

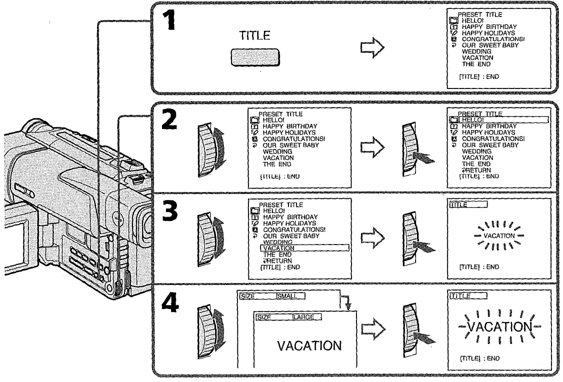
You can select one of eight preset titles and two custom titles (p. 62). You can also select the language, colour, size and position of titles.

Наложение титра

Вы можете выбрать один из восьми предварительно установленных титров и два созданных Вами титра (стр. 62). Вы можете также выбрать язык, цвет, размер и положение титров.

(1) Press TITLE in the standby mode.
(2) Turn the SEL/PUSH EXEC dial to select ▭, then press the dial.
(3) Turn the SEL/PUSH EXEC dial to select the desired title, then press the dial. The titles are displayed in the language you selected.
(4) Change the colour, size, or position, if necessary.
  ① Turn the SEL/PUSH EXEC dial to select the colour, size, or position, then press the dial. The item appears.
  ② Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial.
  ③ Repeat steps ① and ② until the title is laid out as desired.
(5) Press the SEL/PUSH EXEC dial again to complete the setting.
(6) Press START/STOP to start recording.
(7) When you want to stop recording the title, press TITLE.

(1) Нажмите кнопку TITLE в режиме ожидания.
(2) Поверните диск SEL/PUSH EXEC для выбора индикации ▭, а затем нажмите диск.
(3) Поверните диск SEL/PUSH EXEC для выбора нужного титра, а затем нажмите диск. Титры будут отображаться на выбранном Вами языке.
(4) Измените цвет, размер или положение титра, если нужно.
  ① Поверните диск SEL/PUSH EXEC для выбора цвета, размера или положения титра, а затем нажмите диск. Появится нужный пункт.
  ② Поверните диск SEL/PUSH EXEC для выбора нужного пункта, а затем нажмите диск.
  ③ Повторяйте пункты ① и ② до тех пор, пока титр не будет выглядеть, как нужно.
(5) Нажмите диск SEL/PUSH EXEC еще раз для завершения установки.
(6) Нажмите кнопку START/STOP для начала записи.
(7) Если Вы хотите остановить запись титра, нажмите кнопку TITLE.



Superimposing a title

To superimpose the title while you are recording

Press TITLE while you are recording, and carry out steps 2 to 5. When you press the SEL/PUSH EXEC dial at step 5, the title is superimposed.

To select the language of a preset title

If you want to change the language, select 🅰 before step 2. Then select the desired language and return to step 2.

Note

Both the date and time or either of them may not be displayed depending on the size or position of the title.

If you display the menu or title menu while superimposing a title

The title is not recorded while the menu or title menu is displayed.

To use the custom title

If you want to use the custom title, select ⊡ in step 2.
If you have not made any custom title, "– – – – ..." appears on the display.

Title setting

- The title colour changes as follows :
  WHITE ←→ YELLOW ←→ VIOLET ←→ RED ←→ CYAN ←→ GREEN ←→ BLUE
- The title size changes as follows :
  SMALL ←→ LARGE
  You cannot input more than 13 characters in LARGE size.
- The title position changes as follows :
  1 ←→ 2 ←→ 3 ←→ 4 ←→ 5 ←→ 6 ←→ 7 ←→ 8 ←→ 9
  The larger the position number, the lower the title is positioned.
  When you select the title size "LARGE", you cannot choose position 9.
  When you select the title size "LARGE" in the CINEMA mode, you cannot choose position 8 nor 9.

When you are selecting and setting the title

You cannot superimpose the title displayed on the screen.

When you superimpose a title while you are recording

The beep does not sound.

Наложение титра

Для наложения титра во время записи

Нажмите кнопку TITLE во время записи и выполните действия пунктов со 2 по 5. Если Вы нажмете диск SEL/PUSH EXEC в пункте 5, титр будет наложен на изображение.

Для выбора языка предварительно установленного титра

Если Вы хотите изменить язык, выберите индикацию 🅰 перед выполнением действия пункта 2. Затем выберите нужный язык и вернитесь к пункту 2.

Примечание

Индикация даты и времени или же одна из них не могут отображаться на дисплее в зависимости от размера или положения титра.

Если на дисплее отображается меню или меню титров во время наложения титра

Титр не записывается во время отображения на дисплее меню или меню титров.

Для использования созданного Вами титра

Если Вы хотите использовать созданный Вами титр, выберите индикацию ⊡ в пункте 2.
Если Вы не создали своего собственного титра, на дисплее появится индикация "– – – – ...".

Установка титра

- Цвет титра изменяется следующим образом:
  WHITE (БЕЛЫЙ) ←→ YELLOW (ЖЕЛТЫЙ) ←→ VIOLET (ФИОЛЕТОВЫЙ) ←→ RED (КРАСНЫЙ) ←→ CYAN (ГОЛУБОЙ) ←→ GREEN (ЗЕЛЕНЫЙ) ←→ BLUE (СИНИЙ)
- Размер титра изменяется следующим образом:
  SMALL (МАЛЕНЬКИЙ) ←→ LARGE (БОЛЬШОЙ)
  Вы не можете ввести более 13 символов при размере LARGE.
- Положение титра изменяется следующим образом:
  1 ←→ 2 ←→ 3 ←→ 4 ←→ 5 ←→ 6 ←→ 7 ←→ 8 ←→ 9
  Чем больше номер положения титра, тем ниже будет расположен титр.
  Если Вы выберите размер "LARGE", Вы не сможете выбрать положение 9.
  Когда Вы выбираете размер титра "LARGE" в режиме CINEMA, Вы не сможете выбрать положение 8 или 9.

Во время выбора и установки титра

Вы не можете налагать на изображение титр, отображаемый на экране.

При наложении титра во время записи

Зуммерного сигнала не будет.

Making your own titles

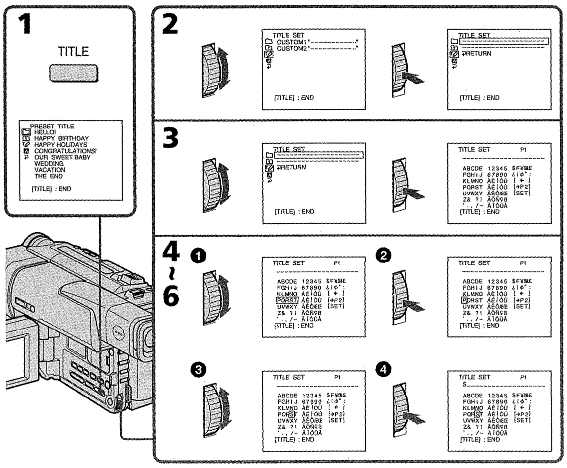
You can make up to two titles and store them in your camcorder. Each title can have up to 20 characters.

(1) Press TITLE in the standby or PLAYER mode.
(2) Turn the SEL/PUSH EXEC dial to select ✎, then press the dial.
(3) Turn the SEL/PUSH EXEC dial to select the first line (CUSTOM1) or second line (CUSTOM2), then press the dial.
(4) Turn the SEL/PUSH EXEC dial to select the column of the desired character, then press the dial.
(5) Turn the SEL/PUSH EXEC dial to select the desired character, then press the dial.
(6) Repeat steps 4 and 5 until you have selected all characters and completed the title.
(7) To finish making your own titles, turn the SEL/PUSH EXEC dial to select [SET], then press the dial. The title is stored in memory.
(8) Press TITLE to make the title menu disappear.

Создание своих собственных титров

Вы можете создать два собственных титра и хранить их в памяти видеокамеры. Каждый титр может состоять из 20 символов.

(1) Нажмите кнопку TITLE в режиме ожидания или режиме PLAYER.
(2) Поверните диск SEL/PUSH EXEC для выбора индикации ✎, а затем нажмите диск.
(3) Поверните диск SEL/PUSH EXEC для выбора первой строки (CUSTOM1) или второй строки (CUSTOM2), а затем нажмите диск.
(4) Поверните диск SEL/PUSH EXEC для выбора колонки с нужным символом, а затем нажмите диск.
(5) Поверните диск SEL/PUSH EXEC нужного символа, а затем нажмите диск.
(6) Повторяйте действия пунктов 4 и 5 до тех пор, пока не выберите все символы и не составите полностью титр.
(7) Для завершения создания своих собственных титров поверните диск SEL/PUSH EXEC для выбора команды [SET], а затем нажмите диск. Титр будет занесен в память.
(8) Нажмите кнопку TITLE, чтобы меню титров исчезло.



Making your own titles

To change a title you have stored

In step 3, select CUSTOM1 or CUSTOM2, depending on which title you want to change, then press the SEL/PUSH EXEC dial. Turn the SEL/PUSH EXEC dial to select [←], then press the dial to delete the title. The last character is erased. Enter the new title as desired.

If you take 5 minutes or longer to enter characters in the standby mode while a cassette is in your camcorder

The power automatically goes off. The characters you have entered remain stored in memory. Turn STANDBY down once and then up again, then proceed from step 1.
We recommend setting the POWER switch to PLAYER or removing the cassette so that your camcorder does not automatically turn off while you are entering title characters.

If you select [→P2]

The menu for selecting alphabet and Russian characters appear. Select [→P1] to return to the previous screen.

To delete the title

Select [←]. The last character is erased.

Создание своих собственных титров

Для изменения сохраненного в памяти титра

В пункте 3, выберите команду CUSTOM1 или CUSTOM2 в зависимости от того, какой титр Вы хотите изменить, а затем нажмите диск SEL/PUSH EXEC. Поверните диск SEL/PUSH EXEC для выбора индикации [←], а затем нажмите диск для удаления титра. Последний символ будет удален. Введите новый нужный символ.

Если при вводе символов пройдет 5 минут или более в режиме ожидания при вставленной кассете в Вашу видеокамеру

Питание автоматически выключится. Введенные символы будут сохранены в памяти. Поверните вниз, а затем снова вверх регулятор STANDBY, а затем выполните действия, начиная с пункта 1.
Рекомендуется установить переключатель POWER в положение PLAYER или вынуть кассету, так чтобы Ваша видеокамера автоматически не выключалась при вводе символов титров.

Если Вы выбрали команду [→P2]

Появится меню для выбора алфавита и русских букв. Выберите команду [→P1], чтобы вернуться к предыдущему экрану.

Для удаления титра

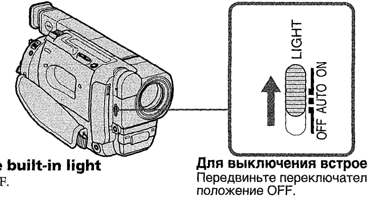
Выберите команду [←]. Последний символ будет удален.

Using the built-in light

– CCD-TRV57E/TRV67E/TRV87E only

You can use the built-in light to suit your shooting situation. The recommended distance between the subject and camcorder is about 1.5 m (5 feet).

Slide LIGHT to ON while your camcorder is in the standby mode. The built-in light turns on. The built-in light turns on/off by turning STANDBY to STANDBY/LOCK.



To turn off the built-in light

Slide LIGHT to OFF.

To turn on the built-in light automatically

Slide LIGHT to AUTO.
The built-in light automatically turns on and off according to the ambient brightness.
However, the built-in light automatically turns off if the built-in light turns on for more than about 5 minutes. In this case, turn STANDBY down once and up again.

CAUTION

Be careful not to touch the lighting section, because the plastic window and surrounding surfaces are hot while the light is on. It remains hot for a while after the light is turned off.

DANGER

Not to be handled by children.
Emits intense heat and light.
Use with caution to reduce the risk of fire or injury to persons.
Do not direct light at persons or materials from less than 1.22 m (4 feet) during use and until cool.
Slide LIGHT to OFF when not in use.

Использование встроенной подсветки

– Только модель CCD-TRV57E/TRV67E/TRV87E

Вы можете использовать встроенную подсветку в соответствии с условиями съемки. Рекомендуемое расстояние между объектом и видеокамерой равно около 1,5 м.

Передвиньте переключатель LIGHT в положение ON в то время, когда видеокамера находится в режиме ожидания. Встроенная подсветка включится. Встроенная подсветка включается/выключается путем поворота регулятора STANDBY положение STANDBY/LOCK.

Для выключения встроенной подсветки

Передвиньте переключатель LIGHT в положение OFF.

Для автоматического включения встроенной подсветки

Передвиньте переключатель LIGHT в положение AUTO.
Встроенная подсветка будет автоматически включаться и выключаться в соответствии с окружающими условиями освещения.
Однако, встроенная подсветка автоматически выключится, если она будет находиться во включенном состоянии около пяти минут. В этом случае, поверните регулятор STANDBY вниз и снова вверх.

ВНИМАНИЕ

Будьте осторожны, чтобы не прикасаться к секции подсветки, поскольку пластмассовое окно и прилегающая поверхность являются горячими при включенной подсветке. Эта секция будет оставаться горячей и некоторое время после выключения подсветки.

ОСТОРОЖНО

Детям пользоваться подсветкой запрещено.
Он излучает сильное тепло и свет.
Соблюдайте осторожность, чтобы не допустить случайного воспламенения предметов и не травмировать людей вокруг.
Не направляйте подсветку на людей или материалы с расстояния менее 1,22 м во время пользования аппаратом до тех пор, пока он не остынет.
Передвиньте переключатель LIGHT в положение OFF, если не будете пользоваться подсветкой.

Using the built-in light

Notes

- The battery pack is quickly discharging while the built-in light is turned on. Slide LIGHT to OFF when not in use.
- When you do not use your camcorder, slide LIGHT to OFF and remove the battery pack to avoid turning on the built-in light.
- When flickering occurs while shooting in the auto mode, slide LIGHT to ON.
- The built-in light may turn on/off when you use the PROGRAM AE or backlight function while shooting in the auto mode.
- The built-in light may be turned off when inserting or ejecting a cassette.
- While the end search function is working, the built-in light is turned off.

Replacing the bulb

Use the Sony XB-3D halogen lamp (not supplied). The supplied halogen lamp is not on the market. Purchase the Sony XB-3D halogen lamp.
Remove the power source before replacing the bulb.

(1) Remove the built-in light unit while pushing the hole under the built-in light unit using a wire.
(2) Turn the bulb housing counterclockwise and detach from the built-in light unit.
(3) Replace the bulb using a dry cloth.
(4) Attach the bulb housing turning it clockwise, then replace the built-in light unit.

Использование встроенной подсветки

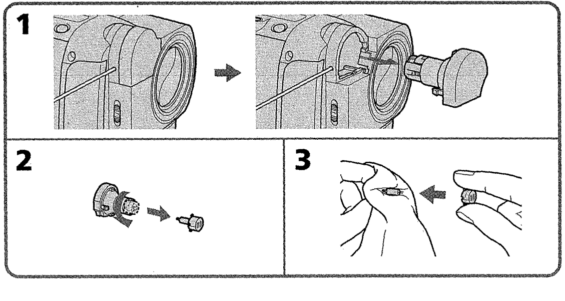
Примечания

- Батарейный блок быстро разряжается при включенной подсветке. Передвиньте переключатель LIGHT в положение OFF, если подсветка не используется.
- Если Вы не используете Вашу видеокамеру, передвиньте переключатель LIGHT в положение OFF и выньте батарейный блок во избежание включения встроенной подсветки.
- В случае мерцания во время съемки в автоматическом режиме передвиньте переключатель LIGHT в положение ON.
- Встроенная подсветка может включаться/выключаться при использовании функции PROGRAM AE или функции задней подсветки во время съемки в автоматическом режиме.
- Встроенная подсветка может выключаться при установке или извлечении кассеты.
- При использовании функции поиска конца записи на ленте встроенная подсветка выключается.

Замена лампы накаливания

Используйте галогенную лампу Sony XB-3D (не прилагается). Прилагаемая галогенная лампа не поступает в розничную продажу. Приобретите галогенную лампу Sony XB-3D.
Перед заменой лампы накаливания выньте источник питания.

(1) Выньте встроенное устройство подсветки, нажав на отверстие под встроенным устройством с помощью проволоки.
(2) Поверните корпус лампы накаливания против часовой стрелки и отсоедините лампу от встроенного устройства подсветки.
(3) Установите на место лампу накаливания с помощью сухой ткани.
(4) Прикрепите корпус лампы накаливания, повернув его по часовой стрелке, и установите на место встроенное устройство подсветки.



Using the built-in light

CAUTION

- When replacing the bulb, use only the Sony XB-3D halogen lamp (not supplied) to reduce the risk of fire.
- To prevent possible burn hazard, disconnect the power source before replacing and do not touch the bulb until the bulb becomes cool enough to handle (for about 30 minutes or more).

Note

To prevent the bulb from being smudged with finger prints, handle it with a dry cloth, etc. If the bulb is smudged, wipe it completely.

Использование встроенной подсветки

ВНИМАНИЕ

- При замене лампы накаливания используйте только галогенную лампу Sony XB-3D (*не прилагается*) *для уменьшения* вероятности воспламенения.
- Для предотвращения опасности получения ожога, отсоедините источник питания перед тем, как заменить лампу накаливания, и не прикасайтесь к лампе до тех пор, пока она достаточно не остынет (около 30 минут или более).

Примечание

Для предотвращения загрязнения лампы накаливания от отпечатков пальцев обращайтесь с ней осторожно, используя сухую ткань. В случае загрязнения лампы накаливания тщательно протрите ее.

Playing back a tape with digital effects

– CCD-TRV87E only

During playback, you can process a scene using the digital effect functions: STILL, FLASH, LUMI. and TRAIL.

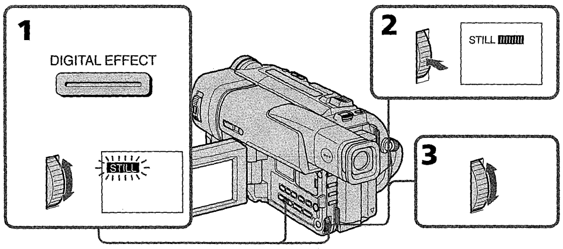
(1) During playback, press DIGITAL EFFECT and turn the SEL/PUSH EXEC dial until the desired digital effect indicator (STILL, FLASH, LUMI. or TRAIL) flashes.
(2) Press the SEL/PUSH EXEC dial.
The digital effect indicator lights up and the bars appear. In the STILL or LUMI. mode, the picture where you press the SEL/PUSH EXEC dial is stored in memory as a still picture.
(3) Turn the SEL/PUSH EXEC dial to adjust the effect.
For details of each digital effect function, see page 51.

Воспроизведение ленты с цифровыми эффектами

– Только модель CCD-TRV87E

Во время воспроизведения, Вы можете видоизменять изображение с помощью функций: STILL, FLASH, LUMI. и TRAIL.

(1) Во время воспроизведения, нажмите кнопку DIGITAL EFFECT и поворачивайте диск SEL/PUSH EXEC до тех пор, пока не начнет мигать индикатор нужного цифрового эффекта (STILL, FLASH, LUMI. или TRAIL).
(2) Нажмите диск SEL/PUSH EXEC.
Высветится индикатор цифрового эффекта и появятся полосы. В режиме STILL или LUMI. изображение, на котором Вы нажмете кнопку диск SEL/PUSH EXEC, будет занесено в память как неподвижное изображение.
(3) Поверните диск SEL/PUSH EXEC для регулировки эффекта изображения.
Подробные сведения по каждой функции цифровых эффектов приведены на стр. 51.



To cancel the digital effect function

Press DIGITAL EFFECT.

Notes
- You cannot process externally input scenes using the digital effect function.
- To record pictures that you have processed using the digital effect function, record the pictures on the VCR.

STILL and LUMI. modes
- You can search a picture to image-process by pressing ▶▶ or ◀◀ in the playback mode. However, noise appears on the picture.
- You cannot delete a picture stored in memory even if you stop playing back a tape.

When you set the POWER switch to OFF (CHARGE)
The digital effect function is automatically canceled.

Для отмены функции цифровых эффектов

Нажмите кнопку DIGITAL EFFECT.

Примечания
- Вы не можете обрабатывать внутренне введеные сцены с использованием функции цифровых эффектов.
- Для записи изображений, которые обработаны с использованием функции цифровых эффектов, записывайте изображения на КВМ.

Режимы STILL и LUMI.
- Вы можете выполнять поиск видоизмененного изображения, нажимая кнопку ▶▶ или ◀◀ в режиме воспроизведения. Однако, на изображении появятся помехи.
- Вы не можете удалить изображение, сохраненное в памяти, даже если Вы остановите воспроизведение ленты.

Если Вы установите переключатель POWER в положение OFF (CHARGE)
Функция цифровых эффектов будет автоматически отменена.

Dubbing a tape

Using the A/V connecting cable or S video connecting cable (not supplied)

Connect your camcorder to the VCR using the A/V connecting cable supplied with your camcorder.

(1) Insert a blank tape (or a tape you want to record over) into the VCR, and insert the recorded tape into your camcorder.
(2) Set the input selector on the VCR to LINE. Refer to the operating instructions of your VCR for more information.
(3) Set the POWER switch to PLAYER.
(4) Play back the recorded tape on your camcorder.
(5) Start recording on the VCR.
Refer to the operating instructions of your VCR for more information.

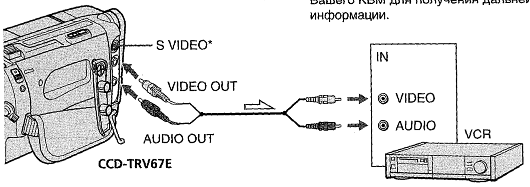
Перезапись ленты

Использование соединительного кабеля аудио/видео или соединительного кабеля S-видео (не прилагается)

Подсоедините Вашу видеокамеру к КВМ с помощью соединительного кабеля аудио/видео, который прилагается к Вашей видеокамере.

(1) Вставьте незаписанную ленту (или ленту, на которую Вы хотите выполнить запись) в КВМ и вставьте записанную ленту в Вашу видеокамеру.
(2) Установите селектор на КВМ в положение LINE. Смотрите инструкцию по эсплуатации Вашего КВМ для получения дальнейшей информации.
(3) Установите переключатель POWER в положение PLAYER.
(4) Начните воспроизведение записанной ленты на Вашей видеокамере.
(5) Начните запись на Вашем КВМ.
Смотрите инструкцию по эсплуатации Вашего КВМ для получения дальнейшей информации.

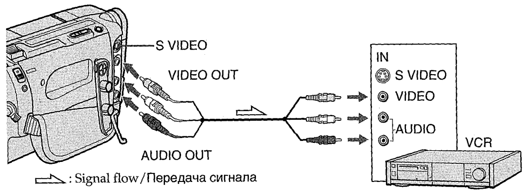
CCD-TRV37E/TRV48E/TRV57E/TRV67E



⇨ : Signal flow/Передача сигнала

* CCD-TRV67E only/только модель CCD-TRV67E

CCD-TRV87E



⇨ : Signal flow/Передача сигнала

Dubbing a tape

When you have finished dubbing a tape

Press ■ on both your camcorder and the VCR.

To prevent deterioration of pictures from dubbing

Set EDIT to ON in the menu settings before dubbing.

If you have displayed the screen indicators on the TV
Make the indicators disappear by pressing DISPLAY so that they will not be superimposed on the edited tape.

You can edit on VCRs that support the following systems
8 8 mm, Hi8 Hi8, D Digital8, VHS VHS, SVHS S-VHS, VHSC VHSC, SVHSC S-VHSC, B Betamax, MiniDV mini DV or DV DV

If your VCR is a monaural type (CCD-TRV87E only)
Connect the yellow plug for video and the white plug for audio on both your camcorder and the VCR. You do not connect the red plug. With this connection, the sound will be monaural.

Connect using an S video cable (not supplied) to obtain high-quality pictures (CCD-TRV67E/TRV87E only)
With this connection, you do not need to connect the yellow (video) plug of the A/V connecting cable.
Connect an S video cable (not supplied) to the S video jacks of both your camcorder and the VCR.

Перезапись ленты

Если Вы закончили перезапись ленты

Нажмите кнопку ■ как на видеокамере, так и на КВМ.

Для предотвращения ухудшения изображения при перезаписи

Перед выполнением перезаписи установите переключатель EDIT на ON в установках меню.

При отображении экранных индикаторов на экране телевизора
Добейтесь того, чтобы индикаторы исчезли, нажав кнопку DISPLAY, так чтобы они не были наложены на монтажную ленту.

Вы можете выполнять монтаж на КВМ, которые совместимы со следующими системами
8 8 mm, Hi8 Hi8, D Digital8, VHS VHS, SVHS S-VHS, VHSC VHSC, SVHSC S-VHSC, B Betamax, MiniDV mini DV или DV DV

Если Ваш КВМ монофонического типа (только модель CCD-TRV87E)
Подсоедините желтый штекер для видеосигнала, а белый штекер для аудиосигнала к видеокамере и к КВМ. Вам не нужно подсоединять красный штекер. При таком подсоединении звук будет монофоническим.

Выполните подсоединение с помощью кабеля S видео (не прилагается) для получения высококачественных изображений (только модель CCD-TRV67E/TRV87E)
При таком подсоединении Вам не нужно подсоединять желтый (видео) штекер соединительного кабеля аудио/видео.
Подсоедините кабель S видео (не прилагается) к гнездам S видео на Вашей видеокамере и КВМ.

Changing the menu settings

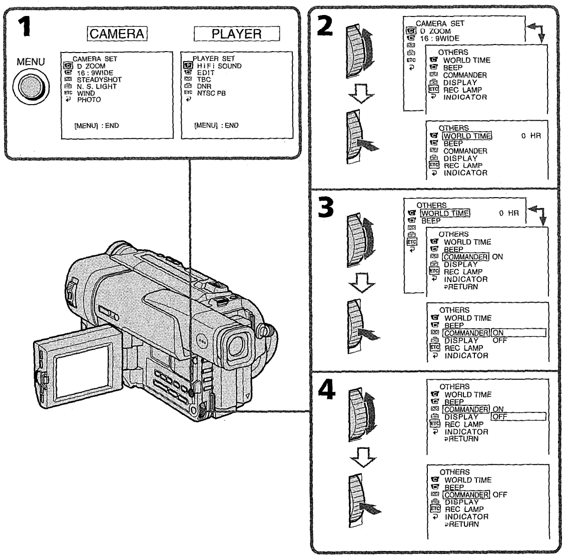
To change the mode settings in the menu settings, select the menu items with the SEL/PUSH EXEC dial. The default settings can be partially changed. First, select the icon, then the menu item and then the mode.

(1) In the standby or PLAYER mode, press MENU.
(2) Turn the SEL/PUSH EXEC dial to select the desired icon, then press the dial to set.
(3) Turn the SEL/PUSH EXEC dial to select the desired item, then press the dial to set.
(4) Turn the SEL/PUSH EXEC dial to select the desired mode, and press the dial to set.
(5) If you want to change other items, select ⮐ RETURN and press the dial, then repeat steps from 2 to 4.
For details, see "Selecting the mode setting of each item" (p. 72).

Изменение установок меню

Для изменения установок режима в установках меню выберите пункты меню с помощью диска SEL/PUSH EXEC. Установки по умолчанию может быть частично изменены. Сначала выберите пиктограмму, затем пункт меню, а затем режим.

(1) В режиме ожидания или режиме PLAYER нажмите кнопку MENU.
(2) Поверните диск SEL/PUSH EXEC для выбора нужной пиктограммы, а затем нажмите диск для установки.
(3) Поверните диск SEL/PUSH EXEC для выбора нужной пиктограммы, а затем нажмите диск для установки.
(4) Поверните диск SEL/PUSH EXEC для выбора нужной пиктограммы, а затем нажмите диск для установки.
(5) Если Вы хотите изменить другие пункты, выберите команду ⮐ RETURN, а затем нажмите диск, после чего повторите действия пунктов со 2 по 4.
Подробные сведения приведены в разделе "Выбор установок режима по каждому пункту" (стр. 77).



To make the menu display disappear
Press MENU.

Для того, чтобы исчезла индикация меню
Нажмите кнопку MENU.

Menu items are displayed as the following icons:

CAMERA SET
PLAYER SET
LCD SET
TAPE SET
SETUP MENU
OTHERS

Depending on your camcorder model
The menu display may be different from that in this illustration.

Пункты меню отображаются в виде следующих пиктограмм:

CAMERA SET
PLAYER SET
LCD SET
TAPE SET
SETUP MENU
OTHERS

В зависимости от модели Вашей видеокамеры
Дисплей меню может отличаться от от того, что приведен на рисунке.

English

Selecting the mode setting of each item ● is the default setting.

Menu items differ according to whether the POWER switch is set to PLAYER or CAMERA.
The LCD screen shows only the items you operte at the moment.

Icon/item	Mode	Meaning	POWER switch
D ZOOM	● OFF	If you set to OFF, digital zoom is deactivated and up to 20× is carried out.	CAMERA
	ON*	If you set to ON, digital zoom is activated and more than 20× to 40× is performed digitally. (p. 25) (CCD-TRV37E only)	
	● OFF	If you set to OFF, digital zoom is deactivated and up to 20× is carried out.	
	40× 80×**	If you set to 40×/80×, digital zoom is activated and more than 20× to 40×/80× is performed digitally. (p. 25) (CCD-TRV48E/TRV57E/TRV67E/TRV87E only)	
16:9WIDE	● OFF	—	CAMERA
	CINEMA	To record in the CINEMA mode (p. 44)	
	16:9FULL	To record in the 16:9FULL mode	
STEADYSHOT (CCD-TRV57E/TRV67E/TRV87E only)	● ON	To compensate for camera-shake	CAMERA
	OFF	To cancel the SteadyShot function. Natural pictures are produced when shooting a stationary object with a tripod.	
N.S.LIGHT	● ON	To use the NightShot Light function (p. 29)	CAMERA
	OFF	To cancel the NightShot Light function	
WIND (CCD-TRV87E only)	● OFF	—	CAMERA
	ON	To reduce wind noise when recording in strong wind	
PHOTO (CCD-TRV87E only)	● NORMAL	To activate the normal photo function	CAMERA
	FADE	To activate the fade photo function	
	SHUTTER	To activate the shutter photo function	

* 40×/240× in some areas
** 360× in some areas

Notes on the SteadyShot function (CCD-TRV57E/TRV67E/TRV87E only)
- The SteadyShot function will not correct excessive camera-shake.
- Attachment of a conversion lens (not supplied) may influence the SteadyShot function.
- SteadyShot does not operate in the 16:9FULL mode. If you set STEADYSHOT to ON in the menu settings, the indicator flashes.

If you cancel the SteadyShot function (CCD-TRV57E/TRV67E/TRV87E only)
The SteadyShot off indicator appears. Your camcorder prevents excessive compensation for camera-shake.

Icon/item	Mode	Meaning	POWER switch
HiFi SOUND (CCD-TRV87E only)	● STEREO	To play back a stereo tape or dual sound track tape	PLAYER
	1	To play back a monaural tape or dual sound track tape with main sound	
	2	To play back a dual sound track tape with sub sound	
EDIT	● OFF	—	PLAYER
	ON	To minimize picture deterioration when editing	
TBC	● ON	To correct jitter	PLAYER
	OFF	To not correct jitter. Set TBC to OFF when playing back a tape on which you have dubbed over and recorded the signal of a TV game or similar machine.	
TBC stands for "Time Base Corrector".			
DNR	● ON	To reduce picture noise	PLAYER
	OFF	To reduce a conspicuous afterimage when the picture has a lot of movement	
DNR stands for "Digital Noise Reduction".			
NTSC PB	● ON PAL TV	To play back a tape recorded in the NTSC colour system on a PAL system TV	PLAYER
	NTSC 4.43	To play back a tape recorded in the NTSC colour system on a TV with the NTSC 4.43 mode	
LCD B. L.	● BRT NORMAL	To set the brightness on the LCD screen normal	PLAYER CAMERA
	BRIGHT	To brighten the LCD screen	
LCD COLOUR		To adjust the colour on the LCD screen Dark Light	PLAYER CAMERA

Note on the playback of the NTSC tapes
You can play back tapes recorded in the NTSC video system.
When you play back a tape on a Multi System TV, select the best mode while viewing the picture on the TV.

In more than 5 minutes after removing the power source
The "WIND" (CCD-TRV87E only) "COMMANDER" (CCD-TRV48E/TRV57E/TRV67E/TRV87E only) "EDIT" and "HiFi SOUND" (CCD-TRV87E only) items are returned to their default settings.
The other menu items are held in memory even when the battery is removed, as long as the lithium battery is installed.

Note on LCD B.L.
When you use power sources other than the battery pack, "BRIGHT" is automatically selected.

Icon/item	Mode	Meaning	POWER switch
REC MODE	● SP	To record in SP (Standard Play) mode	CAMERA
	LP	To increase the recording time to twice the SP mode	
ORC TO SET		To automatically adjust the recording condition to get the best possible recording. Press START/STOP to start adjustment. Your camcorder takes about 10 seconds to check the tape condition and then returns to the standby mode.	CAMERA
ORC stands for "Optimizing the Recording Condition".			
REMAIN	● AUTO	To display the remaining tape bar: • for about 8 seconds after your camcorder is turned on and calculates the remaining amount of tape • for about 8 seconds after a cassette is inserted and your camcorder calculates the remaining amount of tape • for about 8 seconds after ► is pressed in PLAYER mode • for about 8 seconds after DISPLAY is pressed to display the screen indicators • for the period of tape rewinding, forwarding or picture search in the PLAYER mode	PLAYER CAMERA
	ON	To always display the remaining tape bar	

Notes on the LP mode
- When you record a tape in the LP mode on your camcorder, we recommend playing the tape on your camcorder. When you play back the tape on other camcorders or VCRs, noise may occur in pictures or sound.
- Noise may occur also when you play on your camcorder tapes recorded in the LP mode on other camcorders or VCRs.

Notes on ORC setting
- Each time you eject the cassette, the ORC setting will be canceled. If necessary, reset the setting.
- You cannot use this setting on a tape with the red mark on the cassette exposed. (i. e. the tape is write-protected)
- When you set ORC TO SET, a non-recorded section of about 0.1 seconds appears on the tape. However, note that this non-recorded section disappears from the tape when you continue recording from this section.
- To check if you have already set the ORC setting, select ORC TO SET in the menu settings. "ORC ON" is displayed if ORC TO SET is already set.

Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
CLOCK SET		To reset the date or time (p. 82)	CAMERA
AUTO DATE	● ON	To record the date for 10 seconds after recording has started	CAMERA
	OFF	To cancel the auto date function	
LTR SIZE	● NORMAL	To display selected menu items in normal size	PLAYER CAMERA
	2×	To display selected menu items at twice the normal size	
DEMO MODE	● ON	To make the demonstration appear	CAMERA
	OFF	To cancel the demonstration mode	

Notes on DEMO MODE
- You cannot select DEMO MODE when a cassette is inserted in your camcorder.
- DEMO MODE is set to STBY (Standby) at the factory and the demonstration starts about 10 minutes after you have set the POWER switch to CAMERA without a cassette inserted.
  To cancel the demonstration, insert a cassette, set the POWER switch to other than CAMERA, or set DEMO MODE to OFF.
- When NIGHTSHOT is set to ON, the NIGHTSHOT indicator appears in the viewfinder or on the LCD screen and you cannot select DEMO MODE in the menu settings.

Changing the menu settings

Icon/item	Mode	Meaning	POWER switch
ETC WORLD TIME		To set the clock to the local time. Turn the SEL/PUSH EXEC dial to set a time difference. The clock changes by the time difference you set here. If you set the time difference to 0, the clock returns to the originally set time.	CAMERA
BEEP	● MELODY	To output the melody when you start/stop recording or when an unusual condition occurs on your camcorder	PLAYER CAMERA
	NORMAL	To output the beep sound instead of the melody	
	OFF	To cancel the melody and beep sound	
COMMANDER (CCD-TRV48E/TRV57E/TRV67E/TRV87E only)	● ON	To activate the Remote Commander supplied with your camcorder	PLAYER CAMERA
	OFF	To deactivate the Remote Commander to avoid remote control misoperation caused by other VCR's remote control	
DISPLAY	● LCD	To show the display on the LCD screen and viewfinder	PLAYER CAMERA
	V-OUT/LCD	To show the display on the TV screen, LCD screen and viewfinder	
REC LAMP	● ON	To light up the camera recording lamp at the front of your camcorder	CAMERA
	OFF	To turn the camera recording lamp off so that the subject is not aware of the recording	
INDICATOR (CCD-TRV87E only)	● BL OFF	To turn off the backlight on display window	PLAYER CAMERA
	BL ON	To turn on the backlight	

Note (CCD-TRV87E only)
If you press DISPLAY with "DISPLAY" set to "V-OUT/LCD" in the menu settings, the picture from a TV or VCR will not appear on the LCD screen even when your camcorder is connected to outputs on the TV or VCR.

Notes on INDICATOR (CCD-TRV87E only)
- When you select "BL ON", battery life is reduced by about 10 percent during recording.
- When you use power sources other than the battery pack, "BL ON" is automatically selected.

Resetting the date and time

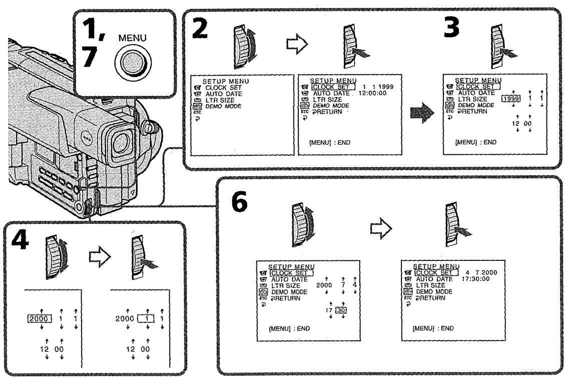
The default clock setting is set to London time for United Kingdom and to Paris time for the other European countries.
The date and time are held in memory by the lithium battery. If you replace the lithium battery with the battery pack or other power source connected, you need not reset the date and time. You must reset the date and time when the lithium battery becomes dead with no power source installed.
First, set the year, then the month, the day, the hour and then the minute.

(1) While your camcorder is in the standby mode, press MENU to display the menu.
(2) Turn the SEL/PUSH EXEC dial to select ⊟, then press the dial.
(3) Turn the SEL/PUSH EXEC dial to select CLOCK SET, then press the dial.
(4) Turn the SEL/PUSH EXEC dial to adjust the desired year, then press the dial.
(5) Set the month, day and hour by turning the SEL/PUSH EXEC dial and pressing the dial.
(6) Set the minute by turning the SEL/PUSH EXEC dial and pressing the dial by the time signal. The clock starts to move.
(7) Press MENU to make the menu disappear. The time indicator appears.

Переустановка даты и времени

Часы установлены по умолчанию на время Лондона для моделей Соединенного Королевства и на время Парижа для моделей других европейских стран.
Дата и время сохраняются в памяти с помощью литиевой батарейки. Если Вы от литиевой батарейки переключитесь на батарейный блок или другой подсоединенный источник питания, Вам нужно будет переустановить дату и время. Вам нужно также переустановить дату и время, когда литиевая батарейка разрядится и в это время не будет вставлен источник питания.
Сначала установите год, затем месяц, день, час и минуту.

(1) В режиме ожидания видеокамеры нажмите кнопку MENU для отображения меню.
(2) Поверните диск SEL/PUSH EXEC для выбора индикации ⊟, а затем нажмите диск.
(3) Поверните диск SEL/PUSH EXEC для выбора команды CLOCK SET, а затем нажмите диск.
(4) Поверните диск SEL/PUSH EXEC для выбора нужного года, а затем нажмите диск.
(5) Установите месяц, день и час путем вращения диска SEL/PUSH EXEC и нажимания диска.
(6) Установите минуту путем вращения диска SEL/PUSH EXEC и нажимания диска в момент передачи сигнала точного времени. Часы начнут функционировать.
(7) Нажмите кнопку MENU для того, чтобы исчезло меню. Появится индикатор времени.



Resetting the date and time

To check the preset date and time
Press DATE to display the date indicator.
Press TIME to display the time indicator.
Press DATE (or TIME) and then press TIME (or DATE) to simultaneously display the date and time indicator.
Press DATE and/or TIME again. The date and/or time indicator disappears.

The year changes as follows:

1999 ←→ 2000 ← · · · · → 2029
↑_______________________↑

Auto date function
When you use your camcorder for the first time, turn it on and reset the date and time to your time before you start recording (p. 82). The date is automatically recorded for 10 seconds after you start recording **(Auto date function)**. This function works only once a day.

Note on the time indicator
The internal clock of your camcorder operates on a 24-hour cycle.

Note on the auto date function
You can change the AUTO DATE setting by selecting ON or OFF in the menu settings. The auto date function automatically displays the date once a day.
However, the date may automatically appear more than once a day if:
- you reset the date and time.
- you eject and insert the tape again.
- you stop recording within 10 seconds.
- you set AUTO DATE to OFF once and set it back ON in the menu settings.

Переустановка даты и времени

Для проверки предварительно установленных даты и времени
Нажмите кнопку DATE для отображения индикатора даты. Нажмите кнопку TIME для отображения индикатора времени. Нажмите кнопку DATE (или TIME), а затем нажмите кнопку TIME (или DATE) для одновременного отображения индикатора даты и времени. Нажмите еще раз кнопку DATE и/или TIME. Индикатор даты и/или времени исчезнет.

Год изменяется следующим образом:

1999 ←→ 2000 ← · · · · → 2029
↑_______________________↑

Функция автоматической даты
Если Вы используете видеокамеру первый раз, включите ее и переустановите дату и время в соответствии со своим часовым поясом, прежде чем начать запись (стр. 82). Даты будет автоматически записываться в течение 10 секунд после начала записи **(функция автоматической даты)**. Эта функция работает один раз в день.

Примечание по индикатору времени
Встроенные часы Вашей видеокамеры работают в 24-часовом режиме.

Примечание по функции автоматической даты
Вы можете изменять установку AUTO DATE путем выбора положений ON или OFF в установках меню. Функция автоматической даты автоматически отбражает дату один раз в день.
Однако, дата может автоматически появляться больше одного раза при:
- переустановке даты и времени.
- выталкивании и установке ленты обратно на место.
- остановке записи в пределах 10 секунд.
- установке команды AUTO DATE в положение OFF и возвращении в положение ON в установках меню.

— Additional Information —

Usable cassettes and playback modes

Selecting the cassette type

– CCD-TRV67E/TRV87E only

You can use both Hi8 and standard 8 mm video cassettes on your camcorder. When you use a Hi8 video cassette, recording and playback are carried out in the Hi8 system. When you use a standard 8 mm video cassette, recording and playback are carried out in the standard 8 mm system.
If you play back a tape recorded on a different video recorder on your camcorder, the playback mode is automatically selected according to the format in which the tape has been recorded.

This Hi8 system is an extension of the standard 8 mm system, and was developed to produce higher quality pictures.
You cannot playback a tape recorded in the Hi8 system correctly on video recorder/players other than a Hi8 video recorder/player.

What is Video 8 XR/video Hi8 XR ?

– CCD-TRV37E/TRV48E/TRV57E/TRV87E only

"Video 8 XR"/"video Hi8 XR" is a function that further enhances the image quality of Video 8/video Hi8. This function allows you to record and playback pictures with clearer details.
Video tapes recorded on a camcorder having the "XR" function show excellent picture quality when they are played back on an "XR" camcorder.
The playback quality will be the normal quality of the standard 8 mm/Hi8 camcorder when video tapes recorded on an "XR" camcorder are played back by a conventional standard 8 mm/Hi8 camcorder or when video tapes recorded on a conventional standard 8 mm/Hi8 camcorder are played back on the "XR" camcorder.

* "XR" stands for "Extended Resolution."

— Дополнительная информация —

Используемые кассеты и режимы воспроизведения

Выбор типа кассеты

– Только модель CCD-TRV67E/TRV87E

Вы можете использовать на Вашей видеокамере либо видеокассеты Hi8, либо стандартные 8-мм видеокассеты. Если Вы используете видеокассету Hi8, запись и воспроизведение будут выполняться в системе Hi8. Если Вы используете стандартную 8-мм видеокассету, запись и воспроизведение будут выполняться в стандартной 8-мм системе.
Если Вы будете воспроизводить на Вашей видеокамере ленту, записанную на разных видеомагнитофонах, то режим воспроизведения будет выбираться автоматически в соответствии с форматом, в котором была записана лента.

Система Hi8 является модификацией стандартной 8-мм системы и была разработана для получения высококачественных изображений.
Вы не сможете воспроизвести надлежащим образом ленту, записанную в системе Hi8, на видеомагнитофоне/плейере, который не относится к видеомагнитофону/плейеру Hi8.

Что такое Video 8 XR/video Hi8 XR ?

– Только модель CCD-TRV37E/TRV48E/TRV57E/TRV87E

"Video 8 XR"/"video Hi8 XR" является функцией, которая еще больше повышает качество изображения формата Video 8/video Hi8. Эта функция позволяет Вам записывать и воспроизводить изображения с утонченными деталями.
Видеоленты, записанные на видеокамере, имеющей функцию "XR", обеспечивают превосходное качество изображения при воспроизведении на видеокамере "XR".
Качество воспроизведения будет обычным качеством видеокамеры стандарта 8 мм/Hi8, когда видеоленты, записанные на видеокамере "XR", воспроизводятся на обычной видеокамере стандарта 8 мм/Hi8 или когда видеоленты, записанные на обычной видеокамере, воспроизводятся на видеокамере "XR".

* "XR" означает "улучшенная разрешающая способность".

Usable cassettes and playback modes

When you play back

The playback mode (SP/LP) and system, Hi8 or standard 8 mm(CCD-TRV67E/TRV87E only) are automatically selected according to the format in which the tape has been recorded. The quality of the recorded picture in the LP mode, however, will not be as good as the SP mode.

Note on AFM HiFi stereo

– CCD-TRV87E only

When you play back a tape, the sound will be monaural if:

- You record the tape on your camcorder, then play it back on an AFM HiFi monaural video recorder/player.
- You record the tape on an AFM HiFi monaural video recorder, then play it back on your camcorder.

Foreign 8 mm video

Because TV colour systems differ from country to country, you may not be able to play back foreign pre-recorded tapes. Refer to "Using your camcorder abroad" to check the TV colour systems used in foreign countries.

Playing back an NTSC-recorded tape

You can play back tapes recorded in the NTSC video system using the SP mode.
If the tape is recorded in the AFM HiFi system, the AFM HiFi sound is reproduced. (CCD-TRV87E only)
However, note that the following will occur during playback of an NTSC-recorded tape.

- When playing back a tape on a TV screen, you may not get the original colour depending on the TV. When you play back on a Multi System TV, set NTSC PB to the desired mode in the menu settings.
- During playback, a black band appears on the lower part of the viewfinder.
- You cannot play back a tape recorded in the NTSC video system with the LP mode neither on the LCD nor on a TV screen.
- If a tape has portions recorded in PAL and NTSC video systems, the tape counter reading is not correct. This discrepancy is due to the difference between the counting cycle of the two video systems.
- You cannot edit the NTSC-recorded tape onto another VCR.

Используемые кассеты и режимы воспроизведения

При выполнении воспроизведения

Режим воспроизведения (SP/LP) и система, Hi8/стандартная 8-мм система (только модель CCD-TRV67E/TRV87E) выбираются автоматически в соответствии с форматом, в котором была выполнена запись на ленте. Однако, качество записанного изображения в режиме LP не будет таким хорошим, как в режиме SP.

Примечание по системе AFM HiFi

– Только модель CCD-TRV87E

При воспроизведении ленты звук будет монофоническим, если:

- Вы запишите ленту на Вашем компьютере, а затем будете воспроизводить ее на монофоническом видеомагнитофоне/плейере AFM HiFi.
- Вы запишите ленту на монофоническом видеомагнитофоне/плейере AFM HiFi, а затем будете воспроизводить на Вашем компьютере.

Иностранные 8-мм видеоленты

Поскольку системы цветного телевидения отличаются от страны к стране, возможно Вы не сможете воспроизводить иностранные предварительно записанные ленты. См. раздел "Использование Вашей видеокамеры за границей" для проверки систем цветного телевидения, используемых в других странах.

Воспроизведение лент, записанных в системе NTSC

Вы можете воспроизводить ленты, записанные в системе NTSC, используя режим SP.
Если лента записана в системе AFM HiFi, то будет воспроизводиться звук AFM HiFi. (Только модель CCD-TRV87E)
Однако, имейте в виду, что во время воспроизведения лент, записанных в системе NTSC, будет иметь место следующее.

- При воспроизведении ленты на экране телевизора Вы можете не получить первоначальные цвета в зависимости от типа телевизора. При воспроизведении на мультисистемном телевизоре установите переключатель NTSC PB на нужный режим в установках меню.
- Во время воспроизведения в нижней части видоискателя будет появляться черная полоса.
- Вы не можете воспроизводить ленту, записанную в видеосистеме NTSC в режиме LP, ни на экране ЖКД, ни на экране телевизора.
- Если на ленте имеются участки, записанные в видеосистемах PAL и NTSC, то функционирование счетчика ленты будет неправильным. Это расхождение объясняется разницей между счетными циклами двух видеосистем.
- Вы не можете выполнять монтаж ленты, записанной в системе NTSC, на другой КВМ.

Usable cassettes and playback modes

When you play back a dual sound track tape

– CCD-TRV87E only

When you play back a dual sound track tape recorded in an AFM HiFi stereo system, set "HiFi SOUND" to the desired mode in the menu settings (p. 70).

Sound from speaker

HiFi Sound Mode	Playing back a stereo tape	Playing back a dual sound track tape
STEREO	Stereo	Main sound and sub sound
1	Monaural	Main sound
2	Unnatural sound	Sub sound

You cannot record dual sound programmes on your camcorder.

Используемые кассеты и режимы воспроизведения

При воспроизведении ленты с двойной звуковой дорожкой

– Только модель CCD-TRV87E

При воспроизведении ленты с двойной звуковой дорожкой на стереофонической системе AFM HiFi установите команду "HiFi SOUND" на нужный режим в установках меню (стр. 70).

Звук от динамика

Режим звучания HiFi	Воспроизведение стереофонической ленты	Воспроизведение ленты с двойной звуковой дорожкой
STEREO	Стерео	Главный звук и вспомогательный звук
1	Монофонический звук	Главный звук
2	Необычный звук	Вспомогательный звук

Вы не можете записывать программы с двойным звучанием на Вашей видеокамере.

Changing the lithium battery in your camcorder

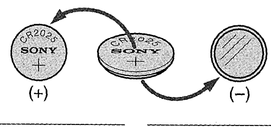
When replacing the lithium battery, keep the battery pack or other power source attached. Otherwise, you will need to reset the date, time and other items in the menu settings hold in memory by the lithium battery.

Insert the battery with the positive (+) side facing out. When the battery becomes weak or dead, the ⚠ indicator flashes in the viewfinder for about 5 seconds when you set the POWER switch to CAMERA. In this case, **replace the battery with a Sony CR2025 lithium battery. Use of any other battery may present a risk of fire or explosion.** Discard used batteries according to the manufacturer's instructions.

Замена литиевой батарейки в Вашей видеокамере

При замене литиевой батарейки батарейный блок или другой источник питания должен быть прикреплен к видеокамере. В противном случае Вам понадобится переустанавливать дату, время и другие пункты в установках меню, хранимых в памяти видеокамеры с помощью литиевой батарейки.

Вставьте батарейку так, чтобы положительный (+) полюс был обращен наружу. Если батарейка станет или разрядится, индикатор ⚠ будет мигать в видоискателе около 5 секунд, если переключатель POWER установлен в положение CAMERA. В этом случае, **замените батарейку на аналогичную литиевую батарейку Sony CR2025. Использование какой-либо другой батарейки создает риск воспламенения или взрыва.** Ликвидируйте использованные батарейки в соответствии с инструкциями предприятия-изготовителя.



WARNING

The battery may explode if mistreated. Do not recharge, disassemble, nor dispose of it in fire.

Lithium battery

- Keep the lithium battery out of the reach of children.
- Should the battery be swallowed, immediately consult a doctor.
- Wipe the battery with a dry cloth to ensure good contact.

Lithium battery installed at the factory

This battery may not last 1 year.

ПРЕДУПРЕЖДЕНИЕ

Если с батарейкой неправильно обращаться, она может взорваться. Не перезаряжайте, не разбирайте и не бросайте в огонь батарейку.

Литиевая батарейка

- Храните литиевую батарейку в месте, не доступном для детей.
- В случае, если кто-либо случайно проглотит батарейку, следует немедленно обратиться к врачу.
- Протрите батарейку сухой тканью для обеспечения хорошего контакта.

Литиевая батарейка, установленная на заводе

Этой батарейки может не хватить на 1 год.

Changing the lithium battery in your camcorder

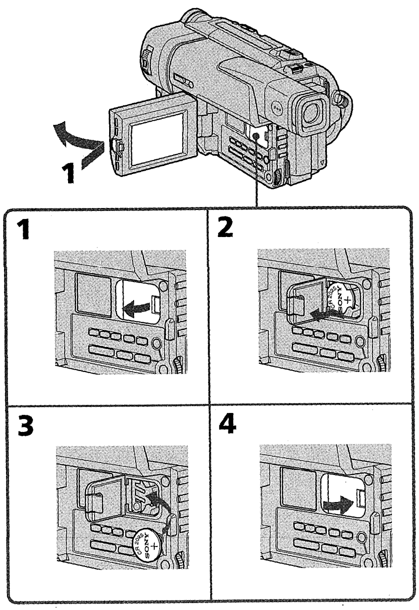
Changing the lithium battery

(1) Open the LCD panel and open the lid of the lithium battery compartment.
(2) Push the lithium battery down once and pull it out from the holder.
(3) Install a Sony CR2025 lithium battery with the positive (+) side facing out.
(4) Close the lid.

Замена литиевой батарейки в Вашей видеокамере

Замена литиевой батарейки

(1) Откройте панель ЖКД и откройте крышку отсека для литиевой батарейки.
(2) Нажмите литиевую батарейку вниз один раз и выньте ее из держателя.
(3) Установите литиевую батарейку Sony CR2025 так, чтобы положительный (+) полюс был обращен наружу.
(4) Закройте крышку.



English

Troubleshooting

If you run into any problem using your camcorder, use the following table to troubleshoot the problem. If the problem persists, disconnect the power source and contact your Sony dealer or local authorized Sony service facility. If "C:□□:□□" appears on the LCD screen or in the viewfinder, the self-diagnosis display function has worked. See page 92.

In the recording mode

Symptom	Cause and/or Corrective Actions
START/STOP does not operate.	• The POWER switch is set to OFF (CHARGE) or PLAYER. → Set it to CAMERA. (p. 22) • STANDBY is set to LOCK. → Turn STANDBY to STANDBY. (p. 22) • The tape has run out. → Rewind the tape or insert a new one. (p. 21, 34) • The write-protect tab is set to expose the red mark. → Use a new tape or slide the tab. (p. 21) • The tape is stuck to the drum (moisture condensation). → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 100)
The power goes off.	• While being operated in the CAMERA mode, your camcorder has been in the standby mode for more than 5 minutes. → Turn STANDBY down once and then up again. (p. 22)
The image on the viewfinder screen is not clear.	• The viewfinder lens is not adjusted. → Adjust the viewfinder lens. (p. 27)
The SteadyShot function does not work. (CCD-TRV57E/TRV67E/TRV87E only)	• STEADYSHOT is set to OFF in the menu settings. → Set it to ON. (p. 70) • The SteadyShot function does not work when the wide mode is set to 16:9FULL.
The autofocusing function does not work.	• FOCUS is set to MANUAL. → Set it to AUTO. (p. 58) • Shooting conditions are not suitable for autofocus. → Set FOCUS to MANUAL to focus manually. (p. 58)
The fader function does not work. (CCD-TRV87E only)	• The digital effect function is working. → Cancel it. (p. 51)
The ⊗ indicator flashes in the viewfinder.	• The video heads may be dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 101)
The picture does not appear in the viewfinder.	• The LCD panel is open. → Close the LCD panel. (p. 24)
A vertical band appears when you shoot a subject such as lights or a candle flame against a dark background.	• The contrast between the subject and background is too high. This is not a malfunction.
A vertical band appears when you shoot a very bright subject.	• This is not a malfunction.
Some tiny white spots appear in the viewfinder or on the LCD screen. (CCD-TRV87E only)	• Slow shutter, low lux or Super NightShot mode is activated. This is not a malfunction.
An unknown picture is displayed in the viewfinder or on the LCD screen.	• If 10 minutes elapse after you set the POWER switch to CAMERA or DEMO MODE is set to ON in the menu settings without a cassette inserted, your camcorder automatically starts the demonstration. → Insert a cassette and the demonstration stops. You can also cancel DEMO MODE. (p. 75)

(Continued on the following page)

Symptom	Cause and/or Corrective Actions
The picture is recorded in incorrect or unnatural colours.	• NIGHTSHOT is set to ON. → Set it to OFF. (p. 29)
Picture appears too bright, and the subject does not appear in the viewfinder or on the LCD screen.	• NIGHTSHOT is set to ON in a bright place. → Set it to OFF, or use the NightShot function in a dark place. (p. 29)

In the playback mode

Symptom	Cause and/or Corrective Actions
The tape does not move when a video control button is pressed.	• The POWER switch is set to CAMERA or OFF (CHARGE). → Set it to PLAYER. (p. 34) • The tape has run out. → Rewind the tape. (p. 34)
The playback picture is not clear or does not appear.	• The television's video channel is not adjusted correctly. → Adjust it. (p. 38) • EDIT is set to ON in the menu settings. → Set it to OFF. (p. 70) • The video head may be dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 101)
No sound or only a low sound is heard when playing back a tape.	• The stereo tape is played back with HiFi SOUND set to 2 in the menu settings. (CCD-TRV87E only) → Set it to STEREO. (p. 70) • The volume is turned to minimum. → Turn up the volume. (p. 34)
The sound is muted or images do not appear when monitoring the picture from TV on the LCD screen. (CCD-TRV87E only)	→ Pull out A/V connecting cable from AUDIO/VIDEO jack, then connect it again.

In the recording and playback modes

Symptom	Cause and/or Corrective Actions
The power does not turn on.	• The battery pack is not installed, or is dead or nearly dead. → Install a charged battery pack. (p. 13, 14) • The AC power adaptor is not connected to the mains. → Connect the AC power adaptor to the mains. (p. 14, 19)
The end search function does not work.	•The tape was ejected after recording. •You have not recorded on the new cassette yet.

Symptom	Cause and/or Corrective Actions
The battery pack is quickly discharged.	• The operating temperature is too low. • The battery pack is not fully charged. → Charge the battery pack again. (p. 14) • The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack. (p. 13)
The battery remaining indicator does not indicate the correct time.	• You have used the battery pack in an extremely hot or cold environment for a long time. • The battery pack is completely dead, and cannot be recharged. → Replace with a new battery pack. (p. 13) • The battery is dead. → Use a charged battery pack. (p. 13, 14)
The power goes off although the battery remaining indicator indicates that the battery pack has enough power to operate.	→ Charge the battery pack fully again so that the indication on the battery remaining indicator is correct.
The cassette cannot be removed from the holder.	• The power source is disconnected. → Connect it firmly. (p. 13, 19) • The battery is dead. → Use a charged battery pack. (p. 13, 14)
The ▣ and ⏏ indicators flash and no functions except for cassette ejection work.	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 100)

Others

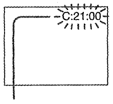
Symptom	Cause and/or Corrective Actions
The Remote Commander supplied with your camcorder does not work. (CCD-TRV48E/TRV57E/TRV67E/TRV87E only)	• COMMANDER is set to OFF in the menu settings. → Set it to ON. (p. 70) • Something is blocking the infrared rays. → Remove the obstacle. • The batteries inserted in the battery holder with the + – polarities incorrectly matching the + – marks. → Insert the batteries with the correct polarity. (p. 116) • The batteries are dead. → Insert new ones. (p. 116)
The date or time indicator does not appear, and the bars "--:--:--" appear.	• Reset the date and time. (p. 82)
The picture from a TV or VCR does not appear even when your camcorder is connected to outputs on the TV or VCR. (CCD-TRV87E only)	• DISPLAY is set to V-OUT/LCD in the menu settings. → Set it to LCD. (p. 70)
The melody or beep sounds for 5 seconds.	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 100) • Some troubles has occurred in your camcorder. → Remove the cassette and insert it again, then operate your camcorder.
While charging the battery pack, no indicator appears or the indicator flashes in the display window.	• The AC power adaptor is disconnected. → Connect it firmly. (p. 14, 19) • Something is wrong with the battery pack. → Contact your Sony dealer or local authorized Sony service facility.

English

Self-diagnosis display

Your camcorder has a self-diagnosis display function.
This function displays the current condition of your camcorder as a 5-digit code (a combination of a letter and figures) in the viewfinder, on the LCD screen or in the display window. If a 5-digit code is displayed, check the following code chart. The last two digits (indicated by □□) will differ depending on the state of your camcorder.

Viewfinder (or LCD screen)



Self-diagnosis display
- C:□□:□□
  You can service your camcorder yourself.
- E:□□:□□
  Contact your Sony dealer or local authorized Sony facility.

Five-digit display	Cause and/or Corrective Actions
C:04:□□	• You are using a battery pack that is not an "InfoLITHIUM" battery pack. → Use an "InfoLITHIUM" battery pack. (p. 18)
C:21:□□	• Moisture condensation has occurred. → Remove the cassette and leave your camcorder for at least 1 hour to acclimatize. (p. 100)
C:22:□□	• The video heads are dirty. → Clean the heads using the Sony V8-25CLD cleaning cassette (not supplied). (p. 101)
C:31:□□ C:32:□□	• A malfunction other than the above that you can service has occurred. → Remove the cassette and insert it again, then operate your camcorder. → Disconnect the mains lead of the AC power adaptor or remove the battery pack. After reconnecting the power source, operate your camcorder.
E:61:□□ E:62:□□	• A malfunction that you cannot service has occurred. → Contact your Sony dealer or local authorized Sony service facility and inform them of the 5-digit code. (example: E:61:10)

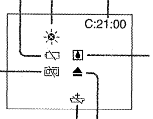
If you are unable to rectify the problem even if you try corrective actions a few times, contact your Sony dealer or local authorized Sony service facility.

English

Warning indicators and messages

If indicators and messages appear in the viewfinder, on the LCD screen or in the display window, check the following:
See the page in parentheses "( )" for more information.
The indicators and messages are displayed in yellow.

Warning indicators



The video heads are dirty
Slow flashing:
- You need to clean the heads using the Sony V8-25CLD cleaning cassette (not supplied) (p. 101).

The battery is dead or nearly dead
Slow flashing:
- The battery is nearly dead.

Fast flashing:
- The battery is dead (p. 14).
- The battery is completely dead, and cannot be recharged.

Depending on conditions, the ▭ indicator may flash, even if there are 5 to 10 minutes remaining.

Warning indicator as to tape
Slow flashing:
- The tape is near the end.
- No tape is inserted (p. 21).*
- The write-protect tab on the cassette is out (red) (p. 21).*

Fast flashing:
- The tape has run out (p. 21, 34).*

The lithium battery is weak or is not installed (p. 87)

Self-diagnosis display (p. 92)

Moisture condensation has occurred*
Fast flashing:
- Eject the cassette, turn off your camcorder, and leave it for about 1 hour with the cassette compartment open (p. 100).

You need to eject the cassette
Slow flashing:
- The write-protect tab on the cassette is out (red) (p. 21).*

Fast flashing:
- Moisture condensation has occurred (p. 100).
- The tape has run out (p. 21, 34).*
- The self-diagnosis display function is activated (p. 92).*

Warning messages

• CLOCK SET	Reset the date and time (p. 82).
• For "InfoLITHIUM" BATTERY ONLY	Use an "InfoLITHIUM" battery pack (p. 18).
• CLEANING CASSETTE	The video heads are dirty (p. 101).
• START/STOP KEY	Press the START/STOP button to activate the ORC setting. This message is displayed in white. (p. 74).
• ORC	The ORC setting is working. This message is displayed in white (p. 74).

* You hear the melody or beep sound.

Using your camcorder abroad

Using your camcorder abroad

You can use your camcorder in any country or area with the AC power adaptor supplied with your camcorder within 100 V to 240 V AC, 50/60 Hz.

Your camcorder is a PAL system based camcorder. If you want to view the playback picture on a TV, it must be a PAL system based TV with VIDEO/AUDIO input jack.
The following shows TV colour systems used overseas.

PAL system
Australia, Austria, Belgium, China, Czech Republic, Denmark, Finland, Germany, Great Britain, Holland, Hong Kong, Italy, Kuwait, Malaysia, New Zealand, Norway, Portugal, Singapore, Slovak Republic, Spain, Sweden, Switzerland, Thailand, etc.

PAL-M system
Brazil

PAL-N system
Argentina, Paraguay, Uruguay

NTSC system
Bahama Islands, Bolivia, Canada, Central America, Chile, Colombia, Ecuador, Jamaica, Japan, Korea, Mexico, Peru, Surinam, Taiwan, the Philippines, the U.S.A., Venezuela, etc.

SECAM system
Bulgaria, France, Guyana, Hungary, Iran, Iraq, Monaco, Poland, Russia, Ukraine, etc.

Simple setting of clock by time difference

You can easily set the clock to the local time by setting a time difference. Select WORLD TIME in the menu settings. See page 76 for more information.

Использование Вашей видеокамеры за границей

Использование Вашей видеокамеры за границей

Вы можете использовать Вашу видеокамеру в любой стране или области с помощью сетевого адаптера переменного тока, прилагаемого к Вашей видеокамере, который можно использовать в пределах от 100 В до 240 В переменного тока с частотой 50/60 Гц.

Ваша видеокамера основана на системе PAL. Если Вы хотите просмотреть воспроизводимое изображение на телевизоре, то это должен быть телевизор, основанный на системе PAL, с входными гнездами VIDEO/AUDIO.
Ниже приведены системы цветного телевидения, используемые за рубежом.

Система PAL
Австралия, Австрия, Бельгия, Великобритания, Германия, Голландия, Гонконг, Дания, Испания, Италия, Китай, Кувейт, Малайзия, Новая Зеландия, Норвегия, Португалия, Сингапур, Словацкая Республика, Таиланд, Финляндия, Чешская Республика, Швейцария, Швеция и т.д.

Система PAL-M
Бразилия

Система PAL-N
Аргентина, Парагвай, Уругвай

Система NTSC
Багамские острова, Боливия, Венесуэла, Канада, Колумбия, Корея, Мексика, Перу, Суринам, США, Тайвань, Филиппины, Центральная Америка, Чили, Эквадор, Ямайка, Япония и т.д.

Система SECAM
Болгария, Венгрия, Гвиана, Ирак, Иран, Монако, Польша, Россия, Украина, Франция и т.д.

Простая установка разницы во времени на часах

Вы можете легко установить часы на местное время путем установки разницы во времени. Выберите команду WORLD TIME в установках меню. Подробные сведения приведены на стр. 81.

Maintenance information and precautions

Moisture condensation

If your camcorder is brought directly from a cold place to a warm place, moisture may condense inside your camcorder, on the surface of the tape, or on the lens. In this condition, the tape may stick to the head drum and be damaged or your camcorder may not operate correctly. If there is moisture inside your camcorder, the beep sounds and the ▣ indicator flashes. When the ⏏ indicator flashes at the same time, the cassette is inserted in your camcorder. If moisture condenses on the lens, the indicator will not appear.

If moisture condensation occurred

None of the functions except cassette ejection will work. Eject the cassette, turn off your camcorder, and leave it for about 1 hour with the cassette compartment open. Your camcorder can be used again if the ▣ indicator does not appear when the power is turned on again.

Note on moisture condensation
Moisture may condense when you bring your camcorder from a cold place into a warm place (or vice versa) or when you use your camcorder in a hot place as follows:
- You bring your camcorder from a ski slope into a place warmed up by a heating device
- You bring your camcorder from an air-conditioned car or room into a hot place outside
- You use your camcorder after a squall or a shower
- You use your camcorder in a high temperature and humidity place

How to prevent moisture condensation
When you bring your camcorder from a cold place into a warm place, put your camcorder in a plastic bag and tightly seal it. Remove the bag when the air temperature inside the plastic bag has reached the surrounding temperature (after about 1 hour).

Информация по уходу за аппаратом и меры предосторожности

Конденсация влаги

Если видеокамера принесена прямо из холодного места в теплое, то внутри видеокамеры, на поверхности ленты или на объективе может произойти конденсанция влаги. В таком состоянии лента может прилипнуть к барабану головки и будет повреждена или же видеокамера не сможет работать надлежащим образом. Если внутри видеокамеры произошла конденсация влаги, то прозвучит зуммерный сигнал, а на экране ЖКД будет мигать индикатор ▣. Если в то же самое время будет мигать индикатор ⏏, это значит, что в видеокамеру вставлена кассета. Если влага сконденсировалась на объективе, индикатор появляться не будет.

Если произошла конденсация влаги

Ни одна из функций, кроме выталкивания кассеты, не будет работать. Извлеките кассету, выключите видеокамеру и оставьте ее приблизительно на 1 час с открытым отсеком для кассеты. Если при повторном включении питания индикатор ▣ не появится на дисплее, Вы можете снова пользоваться видеокамерой.

Примечание по конденсации влаги
Влага может образоваться, если Вы принесете Вашу видеокамеру из холодного места в теплое (или наоборот) или когда Вы используете Вашу видеокамеру в жарком месте в следующих случаях:
- Вы принесли Вашу видеокамеру с лыжного склона в помещение, где функционирует обогреватель
- Вы принесли Вашу видеокамеру из автомобиля или из комнаты с воздушным кондиционированием в жаркое место на улице
- Вы используете видеокамеру после грозы или дождя
- Вы используете Вашу видеокамеру в очень жарком и влажном месте

Как предотвратить конденсацию влаги
Если видеокамера принесена из холодного места в теплое, то положите видеокамеру в полиэтиленовый пакет и плотно заклейте его. Выньте видеокамеру из полиэтиленового пакета, когда температура воздуха внутри пакета достигнет температуры окружающего воздуха (приблизительно через 1 час).

Maintenance information and precautions

Maintenance information

Cleaning the video head

To ensure normal recording and clear pictures, clean the video heads. The video head may be dirty when:

- The ⊗ indicator and "🖭 CLEANING CASSETTE" message appear one after another or the ⊗ indicator flashes on the LCD screen or in the viewfinder.
- Playback pictures contain noise.
- Playback pictures are hardly visible.
- Playback pictures do not appear.

If this happens, clean the video heads with the Sony V8-25CLD cleaning cassette (not supplied).

Информация по уходу за аппаратом и меры предосторожности

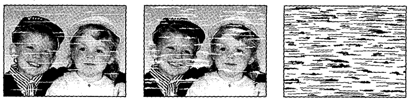
Информация по уходу за аппаратом

Чистка видеоголовок

Для обеспечения нормальной записи и четкого изображения следует периодически чистить видеоголовки. Видеоголовки возможно загрязнены, если:

- На экране ЖКД или в видоискателе появляются один за другим индикатор ⊗ и сообщение "🖭 CLEANING CASSETTE" или же мигат индикатор ⊗.
- воспроизводимое изображение содержит помехи.
- воспроизводимое изображение с трудом различимо.
- воспроизводимое изображение не появляется на экране.

Если это произошло, почистите видеоголовки с помощью очистительной кассеты Sony V8-25CLD (не прилагается).



[a] Slightly dirty
[b] Very dirty

[a] Слегка загрязнены
[b] Очень загрязнены

Note on video heads

When the playback pictures are still contain noise even if you have cleaned the video heads with a cleaning cassette, the video heads may have worn down due to long use. If this is the case, they must be replaced with new heads. Contact your Sony dealer or local authorized Sony service facility.

Cleaning the LCD screen

If fingerprints or dust make the LCD screen dirty, we recommend using a LCD Cleaning Kit (not supplied) to clean the LCD screen.

Примечание по видеоголовкам

Если воспроизводимое изображение все еще содержит помехи даже после того, как Вы почистили видеоголовки с помощью очистительной кассеты, то, возможно, видеоголовки уже износились вследствие длительной эксплуатации видеокамеры. В этом случае, их следует заменить на новые. Обратитесь в сервисный центр Sony или в местное уполномоченное предприятие по обслуживанию изделий Sony.

Чистка экрана ЖКД

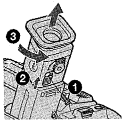
Если на экране ЖКД появятся отпечатки или пыль, рекомендуется воспользоваться очистительным набором для ЖКД (не прилагается) для чистки ЖКД.

Removing dust from inside the viewfinder

(1) ❶Remove the screw with a screwdriver (not supplied). ❷Then, while holding the RELEASE knob up, ❸turn the eyecup in a counterclockwise direction and pull it out.
(2) Clean the surface with a commercially available blower for a still camera.
(3) Turn the eyecup in a clockwise direction, then replace the screw.

Удаление пыли изнутри видоискателя

(1) ❶ Удалите винт с помощью отвертки (не прилагается). ❷ Затем, удерживая кнопку RELEASE вверху, ❸ поверните окуляр против часовой стрелки и вытащите его.
(2) Почистите поверхность с помощью воздуходувки для фотоаппаратов, которая приобретается отдельно.
(3) Поверните окуляр по часовой стрелке, а *затем установите на место винт.*



Caution

Do not remove any other screws. You may remove only the screw to remove the eyecup.

Внимание

Не отвинчивайте другие винты. Вы можете отвинчивать только винт для снятия окуляра.

Precautions

Camcorder operation

- Operate your camcorder on 7.2 V (battery pack) or 8.4 V (AC power adaptor).
- For DC or AC operation, use the accessories recommended in this operating instructions.
- If any solid object or liquid get inside the casing, unplug your camcorder and have it checked by a Sony dealer before operating it any further.
- Avoid rough handling or mechanical shock. Be particularly careful of the lens.
- Keep the POWER switch set to OFF (CHARGE) when you are not using your camcorder.
- Do not wrap your camcorder with a towel, for example, and operate it. Doing so might cause heat to build up inside.
- Keep your camcorder away from strong magnetic fields or mechanical vibration.
- Do not touch the LCD screen with your fingers or a sharp-pointed object.
- If your camcorder is used in a cold place, a residual image may appear on the LCD screen. This is not a malfunction.
- While using your camcorder, the back of the LCD screen may heat up. This is not a malfunction.

Меры предосторожности

Эксплуатация видеокамеры

- Эксплуатируйте видеокамеру от 7,2 В (батарейный блок) или 8,4 В (сетевой адаптер переменного тока)
- Что касается эксплуатации видеокамеры от постоянного и переменного тока, используйте принадлежности, рекомендуемые в данной инструкции по эксплуатации.
- Если какой-нибудь твердый предмет или жидкость попали внутрь корпуса, то выключите видеокамеру и проверьте ее у дилера Sony перед дальнейшей ее эксплуатацией.
- Избегайте грубого обращения с видеокамерой или механических ударов. Будьте особенно осторожны с объективом.
- Если видеокамера не используется, держите выключатель POWER в положении OFF (CHARGE).
- Не заворачивайте Вашу видеокамеру, например, в полотенце, и не эксплуатируйте ее в таком состоянии. В противном случае может произойти повышение температуры внутри видеокамеры.
- Держите Вашу видеокамеру подальше от сильных магнитных полей или механической вибрации.
- Не прикасайтесь к экрану ЖКД своими пальцами или острыми предметами.
- При эксплуатации Вашей видеокамеры в холодном месте, на экране ЖКД может появляться остаточное изображение. Это не является неисправностью.
- При эксплуатации Вашей видеокамеры, задняя сторона экрана ЖКД может нагреваться. Это не является неисправностью.

Built-in light

– CCD-TRV57E/TRV67E/TRV87E only

- Do not knock or jolt the built-in light while it is turned on as it may damage the bulb or shorten the life of the bulb.
- Do not leave the built-in light on while it is resting on or against something; it may cause a fire or damage the built-in light.

On handling tapes

Do not insert anything into the small holes on the rear of the cassette. These holes are used to sense the type and thickness of the tape and if the recording tab is in or out.

Camcorder care

- When your camcorder is not to be used for a long time, remove the battery. (CCD-TRV37E/TRV48E only)
- Remove the tape, and periodically turn on the power, operate the CAMERA and PLAYER sections and play back a tape for about 5 minutes when your camcorder is not to be used for a long time.
- Clean the lens with a soft brush to remove dust. If there are fingerprints on the lens, remove them with a soft cloth.
- Clean the camcorder body with a dry soft cloth, or a soft cloth lightly moistened with a mild detergent solution. Do not use any type of solvent which may damage the finish.
- Do not let sand get into your camcorder. When you use your camcorder on a sandy beach or in a dusty place, protect it from the sand or dust. Sand or dust may cause your camcorder to malfunction, and sometimes this malfunction cannot be repaired.

AC power adaptor

- Unplug the unit from the mains when you are not using the unit for a long time. To disconnect the mains lead, pull it out by the plug. Never pull the mains lead itself.
- Do not operate the unit with a damaged cord or if the unit has been dropped or damaged.
- Do not bend the mains lead forcibly, or place a heavy object on it. This will damage the cord and may cause fire or electrical shock.

Встроенная подсветка

– Только модель CCD-TRV57E/TRV67E/ TRV87E

- Не стучите по устройству подсветки и не трясите его в то время, когда оно включено, поскольку это может повредить лампу накаливания или сократить ее срок службы.
- Не оставляйте встроенную подсветку включенной в то время, когда она на чем-то лежит или направлена на какой-либо предмет; это может привести к пожару или повредить внутренню подсветку.

Относительно обращения с лентами

Не вставляйте ничего в маленькие отверстия на задней стороне кассеты. Эти отверстия используются для определения типа и толщины ленты, а также для определения наличия или отсутствия лепестка защиты записи на ленте.

Уход за видеокамерой

- Если Ваша видеокамера не будет используется в течение длительного периода времени, выньте батарейный блок (только модель CCD-TRV37E/TRV48E).
- Выньте ленту и периодически включайте питание, оперируйте устройствами CAMERA и PLAYER и воспроизводите ленту порядка 5-х минут если Ваша видеокамера не будет используется в течение длительного периода времени.
- Чистите объектив с помощью мягкой кисточки для удаления пыли. Если имеются отпечатки пальцев на объективе, то удалите их с помощью мягкой ткани.
- Чистите корпус видеокамеры с помощью сухой мягкой ткани или мягкой ткани, слегка смоченной раствором умеренного моющего средства. Не используйте каких-либо типов растворителей, которые могут повредить отделку.
- Не допускайте попадания песка в видеокамеру. Если Вы используете видеокамеру на песчаном пляже или в каком-либо пыльном месте, предохраните аппарат от песка или пыли. Песок или пыль могут привести к неисправности аппарата, которая иногда может быть неисправимой.

Сетевой адаптер переменного тока

- Отсоедините аппарат от электрической сети, если он не используется длительное время. Для отсоединения сетевого шнура потяните его за разъем. Никогда не тяните за сам шнур.
- Не эксплуатируйте аппарат с поврежденным шнуром или же в случае, если аппарат упал или был поврежден.
- Не сгибайте сетевой провод силой и не ставьте на него тяжелые предметы. Это повредит провод и может привести к пожару или поражению электрическим током.

- Prevent metallic objects from coming into contact with the metal parts of the connecting section. If this happens, a short may occur and the unit may be damaged.
- Always keep metal contacts clean.
- Do not disassemble the unit.
- Do not apply mechanical shock or drop the unit.
- While the unit is in use, particularly during charging, keep it away from AM receivers and video equipment. AM receivers and video equipment disturb AM reception and video operation.
- The unit becomes warm during use. This is not a malfunction.
- Do not place the unit in locations that are:
  - Extremely hot or cold
  - Dusty or dirty
  - Very humid
  - Vibrating

Battery pack

- Use only the specified charger or video equipment with the charging function.
- To prevent accident from a short circuit, do not allow metal objects to come into contact with the battery terminals.
- Keep the battery pack away from fire.
- Never expose the battery pack to temperatures above 60°C (140°F), such as in a car parked in the sun or under direct sunlight.
- Keep the battery pack dry.
- Do not expose the battery pack to any mechanical shock.
- Do not disassemble nor modify the battery pack.
- Attach the battery pack to the video equipment securely.
- Charging while some capacity remains does not affect the original battery capacity.

Notes on dry batteries

– CCD-TRV48E/TRV57E/TRV67E/TRV87E only

To avoid possible damage from battery leakage or corrosion, observe the following:

- Be sure to insert the batteries with the + – polarities matched to the + – marks.
- Dry batteries are not rechargeable.
- Do not use a combination of new and old batteries.
- Do not use different types of batteries.
- Current flows from batteries when you are not using them for a long time.
- Do not use leaking batteries.

If batteries are leaking

- Wipe off the liquid in the battery compartment carefully before replacing the batteries.
- If you touch the liquid, wash it off with water.
- If the liquid get into your eyes, wash your eyes with a lot of water and then consult a doctor.

If any problem occurs, unplug your camcorder and contact your nearest Sony dealer.

- Будьте осторожны, чтобы никакие металлические предметы не соприкасались с металлическими частями соединительной секции. Если это случится, то может произойти короткое замыкание, и аппарат может быть поврежден.
- Всегда поддерживайте металлические контакты в чистоте.
- Не разбирайте аппарат.
- Не подвергайте аппарат механической вибрации и не роняйте его.
- При использовании аппарата, особенно во время зарядки, держите его подальше от приемников АМ-радиовещания и видеоаппаратуры. Приемники АМ-радиовещания и видеоаппаратура нарушают АМ-радиоприем и работу видеоаппаратуры.
- В процессе эксплуатации аппарат нагревается. Это является вполне нормальным.
- Не размещайте аппарат в местах:
  - Чрезмерно жарких или холодных
  - Пыльных или грязных
  - Очень влажных
  - Подверженных вибрации

Батарейный блок

- Используйте только указанное зарядное устройство или видеооборудование для функции зарядки.
- Для предотвращения несчастного случая вследствие короткого замыкания не позволяйте металлическим предметам соприкосаться с контактами батарейного блока.
- Храните батарейный блок подальше от огня.
- Никогда не подвергайте батарейный блок воздействию температуры свыше 60°C, как например, в автомобиле, припаркованном на солнце или под прямым солнечным светом.
- Сохраняйте батарейный блок сухим.
- Не подвергайте батарейный блок каким-либо механическим ударам.
- Не разбирайте и не модифицируйте батарейный блок.
- Надежно прикрепляйте батарейный блок к видеоаппаратуре.
- Зарядка при оставшейся мощности не влияет на исходную емкость батарейного блока.

Примечание к сухим батарейкам

–Только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E)

Во избежание возможного повреждения видеокамеры вследствие утечки внутреннего вещества батареек или коррозии соблюдайте следующее:

- При установке батареек соблюдайте правильную полярность + – в соответствии с метками + –.
- Сухие батарейки нельзя перезаряжать.
- Не используйте новые батарейки вместе со старыми.
- Не используйте батарейки разного типа.
- Если батарейки не используются длительное время, они постепенно разряжаются.
- Не используйте батарейки, которые потекли.

Если произошла утечка внутреннего вещества батареек

- Перед тем, как заменить батарейки, тщательно протрите остатки жидкости в отсеке для батареек.
- В случае попадания жидкости на кожу, промойте жидкость водой.
- В случае попадания жидкости в глаза, промойте свои глаза большим количеством воды, после чего обратитесь к врачу.

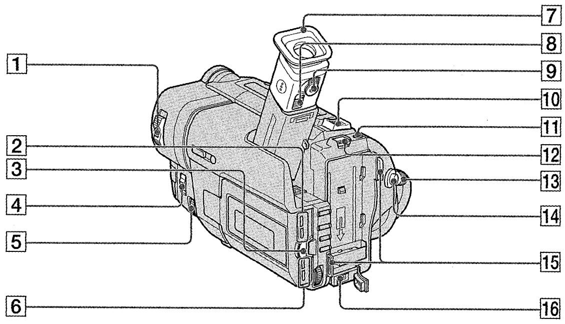
В случае возникновения каких-либо проблем, отключите Вашу видеокамеру от источника питания и обратитесь в ближайший сервисный центр Sony.

Identifying the parts and controls

Camcorder

Обозначение частей и регуляторов

Видеокамера

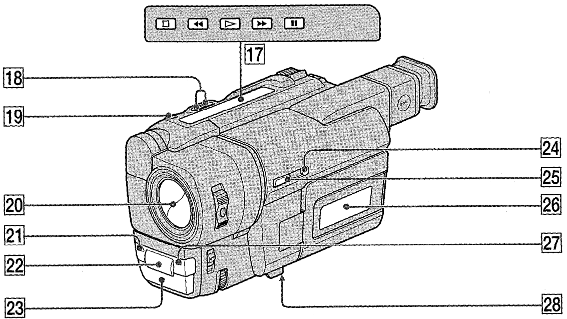


1 **POWER switch** (p. 22)
2 **LCD BRIGHT buttons** (p. 24)
3 **OPEN button** (p. 22)
4 **FOCUS switch** (p. 58)
5 **NEAR/FAR dial** (p. 58)
6 **VOLUME buttons** (p. 34)
7 **Eyecup** (p. 102)
8 **Eyecup RELEASE knob** (p. 102)
9 **Viewfinder lens adjustment lever** (p. 27)
10 **Power zoom lever** (p. 25)
11 **PHOTO button** (CCD-TRV87E only) (p. 41)
12 **BATT RELEASE lever** (p. 13)
13 **STANDBY switch** (p. 22)
14 **START/STOP button** (p. 22)
15 **Hooks for shoulder strap**
16 **DC IN jack** (p. 14, 19)

This mark indicates that this product is a genuine accessory for Sony video products. When purchasing Sony video products, Sony recommends that you purchase accessories with this "GENUINE VIDEO ACCESSORIES" mark.

1 **Переключатель POWER** (стр. 22)
2 **Кнопки LCD BRIGHT** (стр. 24)
3 **Кнопка OPEN** (стр. 22)
4 **Переключатель FOCUS** (стр. 58)
5 **Диск NEAR/FAR** (стр. 58)
6 **Кнопки VOLUME** (стр. 34)
7 **Окуляр** (стр. 102)
8 **Кнопка окуляра RELEASE** (стр. 102)
9 **Рычаг регулировки объектива видоискателя** (стр. 27)
10 **Рычаг приводного вариообъектива** (стр. 25)
11 **Кнопка PHOTO** (только модель CCD-TRV87E) (стр. 41)
12 **Рычаг BATT RELEASE** (стр. 13)
13 **Переключатель STANDBY** (стр. 22)
14 **Кнопка START/STOP** (стр. 22)
15 **Крючок для плечевого ремня**
16 **Гнездо DC IN** (стр. 14, 19)

Данный знак означает, что это изделие является подлинной принадлежностью для видеоаппаратуры Sony. При покупке видеоаппаратуры Sony рекомендуется приобретать для нее принадлежности Sony с таким знаком "GENUINE VIDEO ACCESSORIES".

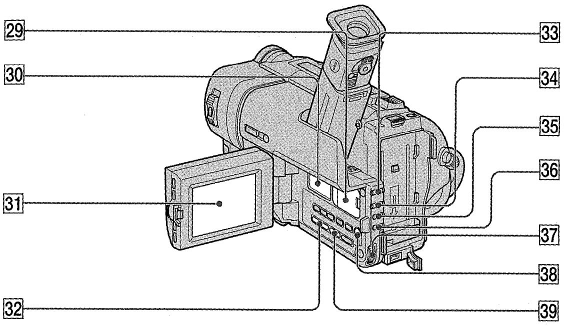


17 **Video control buttons** (p. 34, 36)
■ STOP (stop)
◀◀ REW (rewind)
▶ PLAY (playback)
▶▶ FF (fastforward)
❚❚ PAUSE (pause)
18 **EDITSEARCH button** (p. 32)
19 **S.LASER LINK button** (CCD-TRV87E only) (p. 40)
20 **Lens cover** (p. 22)
21 **Camera recording lamp** (p. 22)
22 **Infrared rays emitter** (p. 29, 40)
23 **Microphone**
24 **SUPER NIGHTSHOT button** (CCD-TRV87E only) (p. 29)
25 **NIGHTSHOT switch** (p. 29)
26 **Display window** (p. 117)
27 **Remote sensor** (CCD-TRV48E/TRV57E/TRV67E/TRV87E only) (p. 115)
28 **Tripod receptacle** (base)
Make sure that the length of the tripod screw is less than 6.5 mm (9/32 inch). Otherwise, you cannot attach the tripod securely and the screw may damage your camcorder.

What is SUPER LASER LINK? (CCD-TRV87E only)
The SUPER LASER LINK system sends and receives pictures and sound between video equipment having the mark by using infrared rays.

17 **Кнопки видеоконтроля** (стр. 34, 36)
■ STOP (остановка)
◀◀ REW (ускоренная перемотка назад)
▶ PLAY (воспроизведение
▶▶ FF (ускоренная перемотка вперед)
❚❚ PAUSE (пауза)
18 **Кнопка EDITSEARCH** (стр. 32)
19 **Кнопка S.LASER LINK** (только модель CCD-TRV87E) (стр. 40)
20 **Крышка объектива** (стр. 22)
21 **Лампочка записи видеокамеры** (стр. 22)
22 **Излучатель инфракрасных лучей** (стр. 29, 40)
23 **Микрофон**
24 **Кнопка SUPER NIGHTSHOT** (только модель CCD-TRV87E) (стр. 29)
25 **Переключатель NIGHTSHOT** (стр. 29)
26 **Окошко дисплея** (стр. 117)
27 **Датчик дистанционного управления** (только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E) (стр. 115)
28 **Гнездо для треноги** (основание)
Убедитесь, что длина винта треноги менее 6,5 мм. В противном случае Вы не сможете надежно прикрепить треногу, а винт может повредить Вашу видеокамеру.

Что такое SUPER LASER LINK? (Только модель CCD-TRV87E)
Система SUPER LASER LINK посылает и принимает сигналы изображения и звука между между видеоаппаратурой, имеющей знак с помощью инфракрасных лучей.

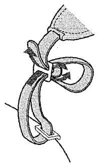


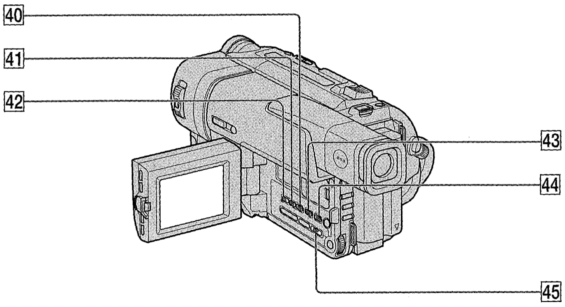
29 **Lithium battery compartment** (p. 88)
30 **Speaker**
31 **LCD screen** (p. 24)
32 **DIGITAL EFFECT button** (CCD-TRV87E only) (p. 52)
33 **FADER button** (p. 47)
34 **BACK LIGHT button** (p. 28)
35 **PROGRAM AE button** (p. 55)
36 **EXPOSURE button** (p. 57)
37 **SEL/PUSH EXEC dial** (p. 41, 71)
38 **MENU button** (p. 71)
39 **PICTURE EFFECT button** (p. 50)

Attaching the shoulder strap
Attach the shoulder strap supplied with your camcorder to the hooks for the shoulder strap.

29 **Отсек для литиевой батарейки** (стр. 88)
30 **Динамик**
31 **Экран ЖКД** (стр. 24)
32 **Кнопка DIGITAL EFFECT** (только модель CCD-TRV87E) (стр. 52)
33 **Кнопка FADER** (стр. 47)
34 **Кнопка BACK LIGHT** (стр. 28)
35 **Кнопка PROGRAM AE** (стр. 55)
36 **Кнопка EXPOSURE** (стр. 57)
37 **Диск SEL/PUSH EXEC** (стр. 41, 71)
38 **Кнопка MENU** (стр. 71)
39 **Кнопка PICTURE EFFECT** (стр. 50)

Прикрепление плечевого ремня
Прикрепите плечевой ремень, прилагаемый к Вашей видеокамере, к крючкам для плечевого ремня.



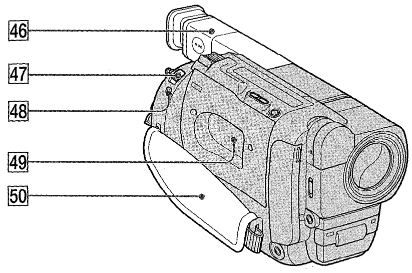


40 **COUNTER RESET button** (p. 23)
41 **TIME button** (p. 31)
42 **DATE button** (p. 31)
43 **DISPLAY button** (p. 35)
44 **END SEARCH button** (p. 32)
45 **TITLE button** (p. 60)

40 **Кнопка COUNTER RESET** (стр. 23)
41 **Кнопка TIME** (стр. 31)
42 **Кнопка DATE** (стр. 31)
43 **Кнопка DISPLAY** (стр. 35)
44 **Кнопка END SEARCH** (стр. 32)
45 **Кнопка TITLE** (стр. 60)

8 Hi8 InfoLITHIUM L SERIES SUPER LASER LINK

These are trademarks./Торговые знаки.



46 **Viewfinder** (p. 27)

47 **EJECT switch** (p. 21)

48 **LANC ⇆ control jack**
LANC stands for Local Application Control Bus System. The ⇆ control jack is used for controlling the tape transport of video equipment and other peripherals connected to the video equipment. This jack has the same function as the jack indicated as CONTROL L or REMOTE.

49 **Cassette compartment** (p. 21)

50 **Grip strap**

46 **Видоискатель** (стр. 27)

47 **Выключатель EJECT** (стр. 21)

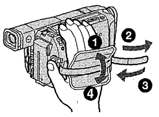
48 **Гнездо управления LANC ⇆**
LANC означает систему канала местного управления. Гнездо управления ⇆ используется для контроля за перемещением ленты видеоаппаратуры и периферийных устройств, подключенных к ней. Данное гнездо имеет такую же функцию, как и разъемы, обозначенные как CONTROL L или REMOTE.

49 **Кассетный отсек** (стр. 21)

50 **Ремень для захвата**

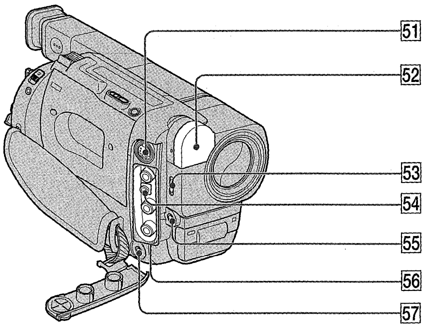
Fastening the grip strap

Прикрепление ремня для захвата



Fasten the grip strap firmly.

Прикрепите ремень для захвата надежно.



51 **S VIDEO jack** (CCD-TRV67E/TRV87E only) (p. 38)

52 **Built-in light** (CCD-TRV57E/TRV67E/TRV87E only) (p. 64)

53 **LIGHT switch** (CCD-TRV57E/TRV67E/TRV87E only) (p. 64)

54 **RFU DC OUT (RFU adaptor DC output) jack** (p. 39)

55 **MIC jack (PLUG IN POWER)**
Connect an external microphone (not supplied). This jack also accepts a "plug-in-power" microphone.
If you connect a 2-pin microphone, supply power from DC OUT jack.
In this case, WIND in the menu settings does not function. (CCD-TRV87E only)

56 **AUDIO/VIDEO jacks** (p. 38)

57 **🎧 (headphones) jack** (CCD-TRV87E only)/**◎ (earphone) jack** (CCD-TRV37E/TRV48E/TRV57E/TRV67E only)
When you use headphones (CCD-TRV87E only)/earphone (CCD-TRV37E/TRV48E/TRV57E/TRV67E only), the speaker on your camcorder is silent.

51 **Гнездо S VIDEO** (только модель CCD-TRV67E/TRV87E) (стр. 38)

52 **Встроенная подсветка** (только модель CCD-TRV57E/TRV67E/TRV87E) (стр. 64)

53 **Выключатель LIGHT** (только модель CCD-TRV57E/TRV67E/TRV87E) (стр. 64)

54 **Гнездо RFU DC OUT (выход пост. тока ВЧ-адаптера)** (стр. 39)

55 **Гнездо MIC (PLUG IN POWER)**
Для подсоединения внешнего микрофона (не прилагается). Это гнездо также позволяет подключить микрофон "с выключателем питания". При подсоединении 2-штырькового микрофона, подвод питания следует выполнять через гнездо DC OUT.
В этом случае функция WIND в установках меню не работает. (Только модель CCD-TRV87E)

56 **Гнезда VIDEO/AUDIO** (стр. 38)

57 **🎧 гнездо (головных телефонов)** (только модель CCD-TRV87E)/**◎ гнездо (наушников)** (только модель CCD-TRV37E/TRV48E/TRV57E/TRV67E)
При использовании головныхх телефонов (только модель CCD-TRV87E)/наушников (только модель CCD-TRV37E/RV48E/TRV57E/TRV67E) акустическая система Вашей видеокамеры будет молчать.

Remote Commander

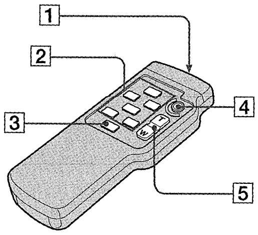
– CCD-TRV48E/TRV57E/TRV67E/TRV87E only

The buttons that have the same name on the Remote Commander as on your camcorder function identically to the buttons on your camcorder.

Пульт дистанционного управления

– Только модель CCD-TRV48E/TRV57E/TRV67E/TRV87E)

Кнопки пульта дистанционного управления, которые имеют одинаковые наименования с кнопками на видеокамере, функционируют идентично.



1 **Transmitter**
Point toward the remote sensor to control your camcorder after turning on your camcorder.

2 **Video control buttons** (p. 36)

3 **DISPLAY button** (p. 35)

4 **START/STOP button** (p. 22)

5 **Power zoom button** (p. 25)

1 **Передатчик**
Нацельте в направлении дистанционного датчика Вашей видеокамеры после включения видеокамеры.

2 **Кнопки видеоконтроля** (стр. 36)

3 **Кнопка DISPLAY** (стр. 35)

4 **Кнопка START/STOP** (стр. 22)

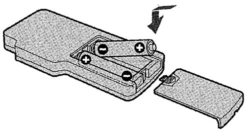
5 **Кнопка приводного вариообъектива** (стр. 25)

To prepare the Remote Commander

Insert 2 R6 (size AA) batteries by matching the + and – polarities on the batteries to the + – marks inside the battery compartment.

Для подготовки пульта дистанционного управления

Вставьте 2 батарейки R6 (размера AA), соблюдая надлежащую полярность + и – на батарейках в соответствии со знаками + – внутри отсека для батареек.



Notes on the Remote Commander

- Point the remote sensor away from strong light sources such as direct sunlight or overhead lighting. Otherwise, the Remote Commander may not function properly.
- Your camcorder works in the commander mode VTR 2. Commander modes 1, 2 and 3 are used to distinguish your camcorder from other Sony VCRs to avoid remote control misoperation. If you use another Sony VCR in the commander mode VTR 2, we recommend changing the commander mode or covering the sensor of the VCR with black paper.

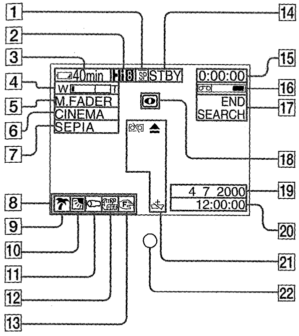
Примечания к пульту дистанционного управления

- Держите дистанционный датчик подальше от сильных источников света, как например, прямые солнечные лучи или иллюминация. В противном случае дистанционное управление может не действовать.
- Данная видеокамера работает в режиме пульта дистанционного управления VTR 2. Режимы пульта дистанционного управления 1, 2 и 3 используются для отличия данной видеокамеры от других КВМ фирмы Sony во избежание неправильной работы дистанционного управления. Если Вы используете другой КВМ фирмы Sony, работающий в режиме VTR 2, мы рекомендуем Вам изменить режим пульта дистанционного управления или закрыть дистанционный датчик КВМ черной бумагой.

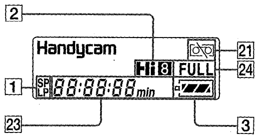
Operation indicators

Рабочие индикаторы

LCD screen and Viewfinder/Экран ЖКД и видоискатель



Display window/Окошко дисплея



1 **Recording mode indicator** (p. 74)/**Mirror mode indicator** (p. 24)

2 **Hi8 format indicator** (CCD-TRV67E/TRV87E only) (p. 28, 84)

3 **Remaining battery time indicator** (p. 28)

4 **Exposure indicator** (p. 57)/**Zoom indicator** (p. 25)

5 **Fader indicator** (p. 47)/**Digital effect indicator** (CCD-TRV87E only) (p. 52)

6 **Wide mode indicator** (p. 44)

7 **Picture effect indicator** (p. 50)

8 **LCD bright indicator** (p. 24)/**Volume indicator** (p. 34)

9 **PROGRAM AE indicator** (p. 54)

10 **Backlight indicator** (p. 28)

11 **Wind indicator** (CCD-TRV87E only) (p. 72)

12 **SteadyShot off indicator** (CCD-TRV57E/TRV67E/TRV87E only) (p. 72)

13 **Manual focusing indicator** (p. 58)

1 **Индикатор режима записи** (стр. 74)/**индикатор зеркального режима** (стр. 24)

2 **Индикатор формата Hi8** (только модель CCD-TRV67E/TRV87E) (стр. 28, 84)

3 **Индикатор оставшегося заряда батарейного блока** (стр. 28)

4 **Индикатор экспозиции** (стр. 57)/**индикатор вариообъектива** (стр. 25)

5 **Индикатор фейдера** (стр. 47)/**индикатор цифрового эффекта** (только модель CCD-TRV87E) (стр. 52)

6 **Индикатор широкоформатного режима** (стр. 44)

7 **Индикатор эффекта изображения** (стр. 50)

8 **Индикатор яркости ЖКД** (стр. 24)/**индикатор громкости** (стр. 34)

9 **Индикатор PROGRAM AE** (стр. 54)

10 **Индикатор задней подсветки** (стр. 28)

11 **Индикатор ветрового фильтра** (только модель CCD-TRV87E) (стр. 77)

12 **Индикатор выключенной устойчивой съемки** (только модель CCD-TRV57E/TRV67E/TRV87E) (стр. 77)

13 **Индикатор ручной фокусировки** (стр. 58)

14 **STBY/REC indicator** (p. 22)/**Video control mode indicator** (p. 36)

15 **Tape counter indicator** (p. 28)/**Self-diagnosis display indicator** (p. 92)/**Photo mode indicator** (CCD-TRV87E only) (p. 41)

16 **Remaining tape indicator** (p. 28)

17 **END SEARCH indicator** (p. 32)

18 **NIGHTSHOT indicator** (p. 29)

19 **AUTO DATE indicator** (p. 83)/**Date indicator** (p. 31, 82)

20 **Time indicator** (p. 31, 82)

21 **Warning indicators** (p. 93)

22 **Recording lamp** (p. 22)

23 **Date or time indicator** (p. 31, 83)/**Tape counter indicator** (p. 28)/**Self-diagnosis display indicator** (p. 92)/**Remaining battery time indicator** (p. 14)

24 **FULL charge indicator** (p.14)

14 **Индикатор STBY/REC** (стр. 22)/**Индикатор режима видеоконтроля** (стр. 36)

15 **Индикатор счетчика ленты** (стр. 28)/**индикатор функции самодиагностики** (стр. 97)/**индикатор фоторежима** (только модель CCD-TRV87E) (стр. 41)

16 **Индикатор оставшейся ленты** (стр. 28)

17 **Индикатор END SEARCH** (стр. 32)

18 **Индикатор NIGHTSHOT** (стр. 29)

19 **Индикатор AUTO DATE** (стр. 83)/**индикатор даты** (стр. 31, 82)

20 **Индикатор времени** (стр. 31, 82)

21 **Предупреждающие индикаторы** (стр. 98)

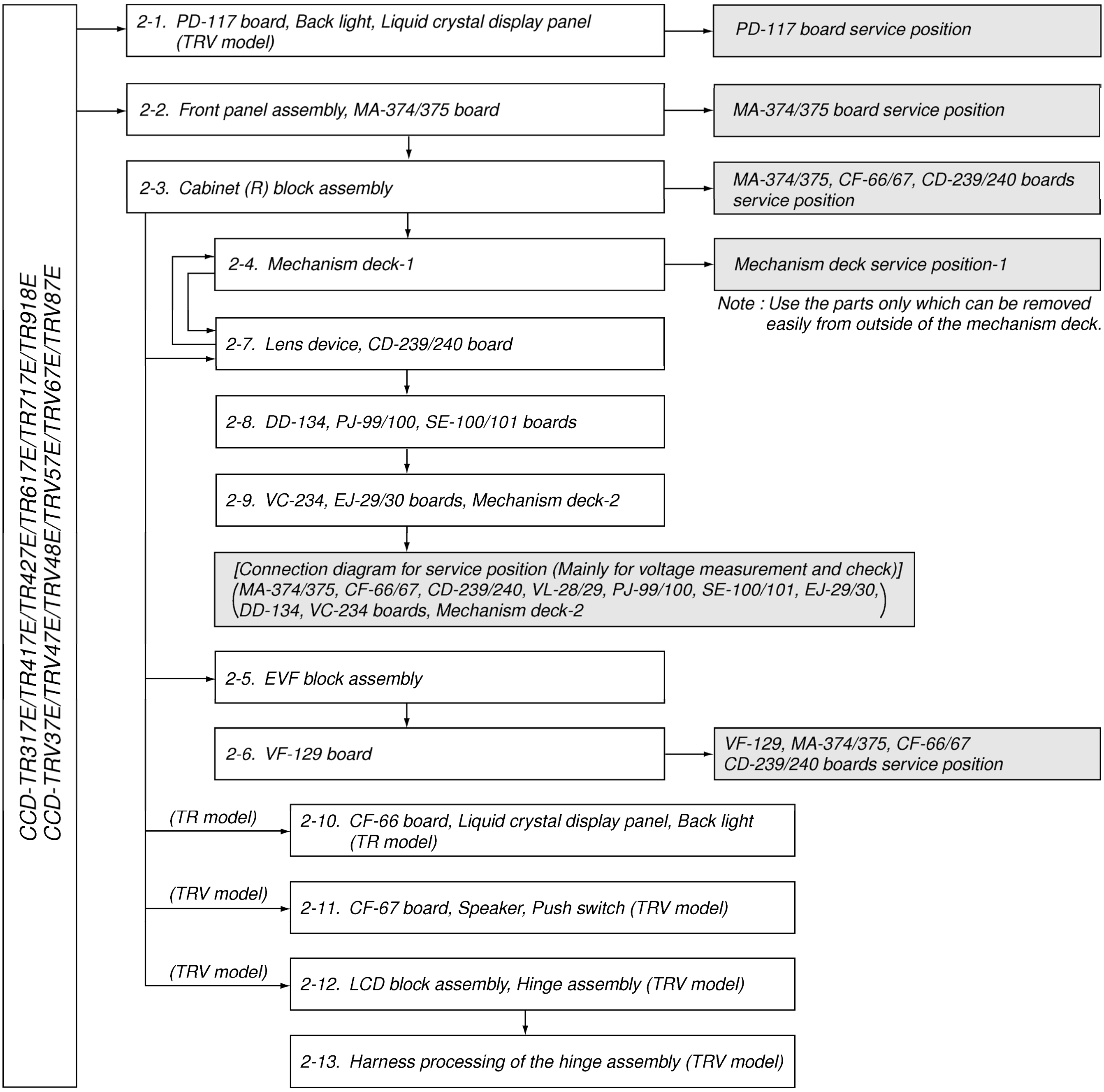
22 **Лампочка записи** (стр. 22)

23 **Индикатор даты или времени** (стр. 31, 83)/**индикатор счетчика ленты** (стр. 28)/**индикатор функции самодиагностики** (стр. 97)/**индикатор времени оставшегося заряда батарейного блока** (стр. 14)

24 **Индикатор зарядки FULL** (стр. 14)

SECTION 2
DISASSEMBLY

The following flow chart shows the disassembly procedure.


CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
2-1. PD-117 board, Back light, Liquid crystal display panel (TRV model)
PD-117 board service position
2-2. Front panel assembly, MA-374/375 board
MA-374/375 board service position
2-3. Cabinet (R) block assembly
MA-374/375, CF-66/67, CD-239/240 boards service position
2-4. Mechanism deck-1
Mechanism deck service position-1
Note : Use the parts only which can be removed easily from outside of the mechanism deck.
2-7. Lens device, CD-239/240 board
2-8. DD-134, PJ-99/100, SE-100/101 boards
2-9. VC-234, EJ-29/30 boards, Mechanism deck-2
[Connection diagram for service position (Mainly for voltage measurement and check)]
(MA-374/375, CF-66/67, CD-239/240, VL-28/29, PJ-99/100, SE-100/101, EJ-29/30, DD-134, VC-234 boards, Mechanism deck-2)
2-5. EVF block assembly
2-6. VF-129 board
VF-129, MA-374/375, CF-66/67 CD-239/240 boards service position
(TR model)
2-10. CF-66 board, Liquid crystal display panel, Back light (TR model)
(TRV model)
2-11. CF-67 board, Speaker, Push switch (TRV model)
(TRV model)
2-12. LCD block assembly, Hinge assembly (TRV model)
2-13. Harness processing of the hinge assembly (TRV model)

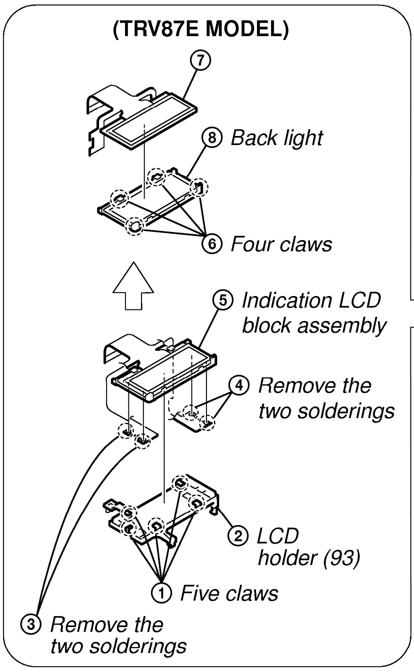
TR model	*: CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E*
TRV model	*: CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E*
Super night shot model	*: CCD-TR918E/TRV87E*
TR night shot model	*: CCD-TR317E/TR417E/TR427E/TR617E/TR717E*
TRV night shot model	*: CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E*
Stereo model	*: CCD-TR918E/TRV87E*
TR steady shot model	*: CCD-TR617E/TR717E/TR918E*
Video light model	*: CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E*
TR video light model	*: CCD-TR617E/TR717E/TR918E*
TRV video light model	*: CCD-TRV57E/TRV67E/TRV87E*
No video light model	*: CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E*
AEP, EE, NE, RU, UK model	*: CCD-TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/TRV57E: AEP, EE, NE, RU, UK/ TRV67E: AEP, EE, NE, RU, UK/TRV87E: AEP, EE, NE, RU, UK*

- Abbreviation
  EE : East European model
  NE : North European model
  RU : Russian model

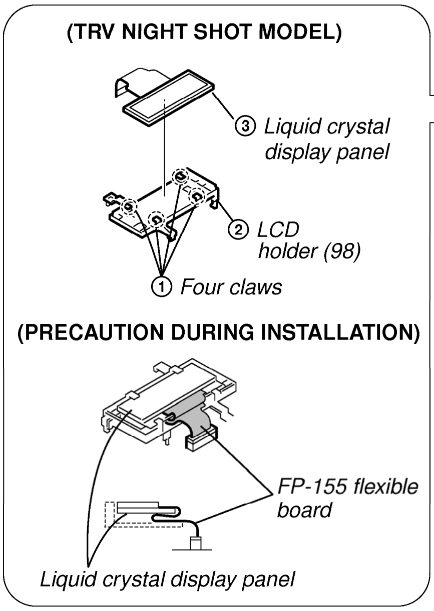
NOTE: Follow the disassembly procedure in the numerical order given.

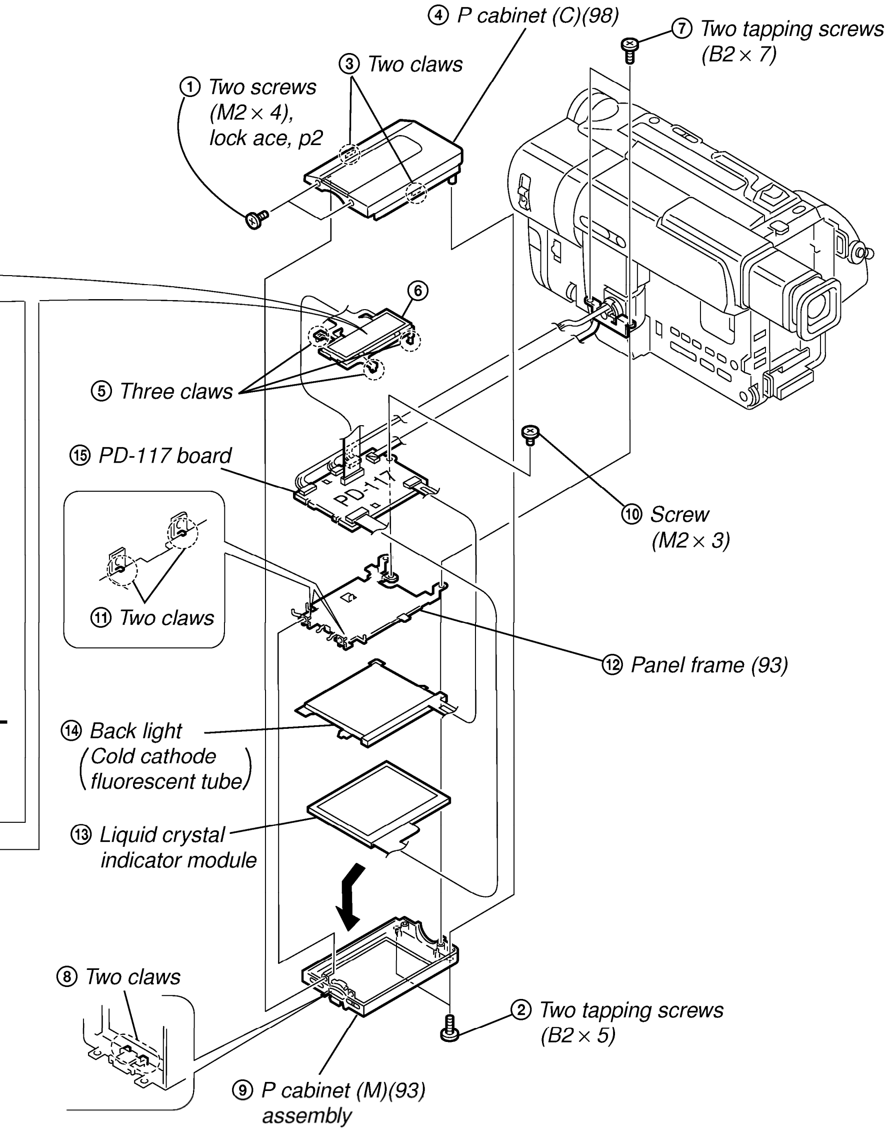
2-1. PD-117 BOARD, BACK LIGHT, LIQUID CRYSTAL DISPLAY PANEL (TRV MODEL)

REMOVING THE BACK LIGHT

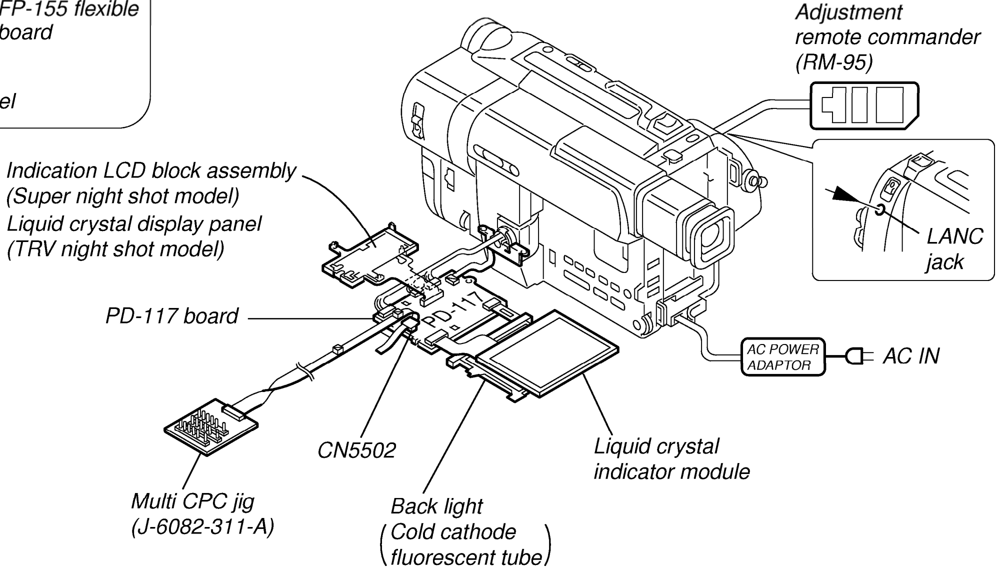

(TRV87E MODEL)
⑦
⑧ Back light
⑥ Four claws
⑤ Indication LCD block assembly
④ Remove the two solderings
② LCD holder (93)
① Five claws
③ Remove the two solderings

REMOVING THE LIQUID CRYSTAL DISPLAY PANEL

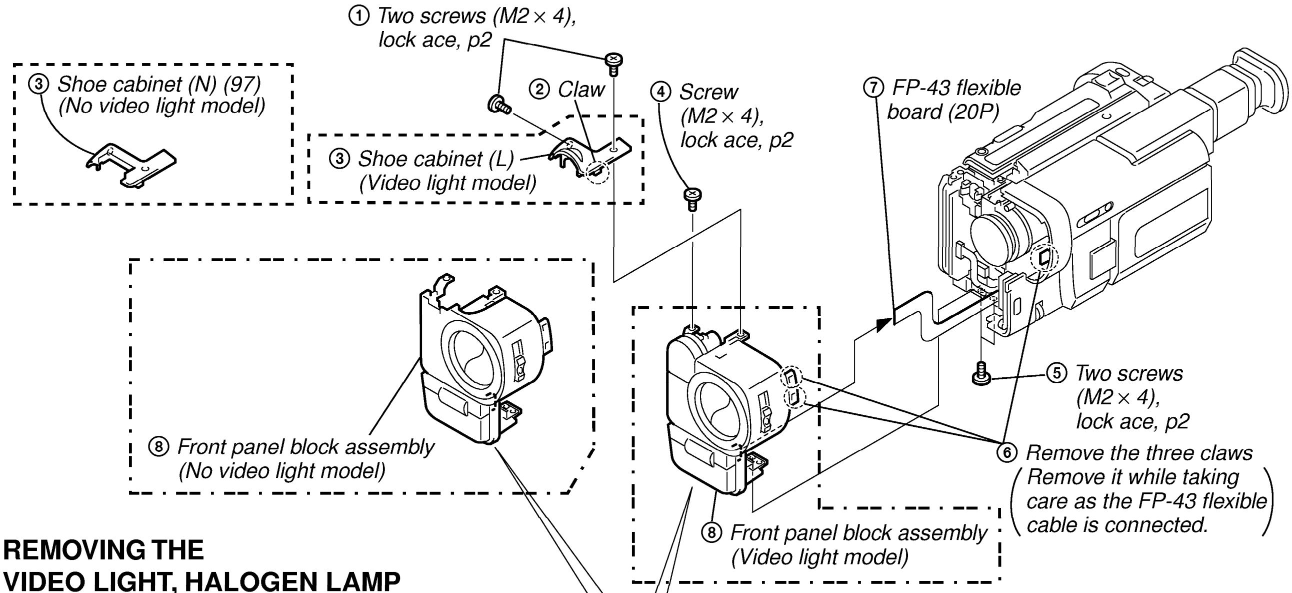

(TRV NIGHT SHOT MODEL)
③ Liquid crystal display panel
② LCD holder (98)
① Four claws
(PRECAUTION DURING INSTALLATION)
FP-155 flexible board
Liquid crystal display panel


④ P cabinet (C)(98)
⑦ Two tapping screws (B2 × 7)
③ Two claws
① Two screws (M2 × 4), lock ace, p2
⑥
⑤ Three claws
⑮ PD-117 board
PD-117
⑩ Screw (M2 × 3)
⑪ Two claws
⑫ Panel frame (93)
⑭ Back light (Cold cathode fluorescent tube)
⑬ Liquid crystal indicator module
⑧ Two claws
② Two tapping screws (B2 × 5)
⑨ P cabinet (M)(93) assembly

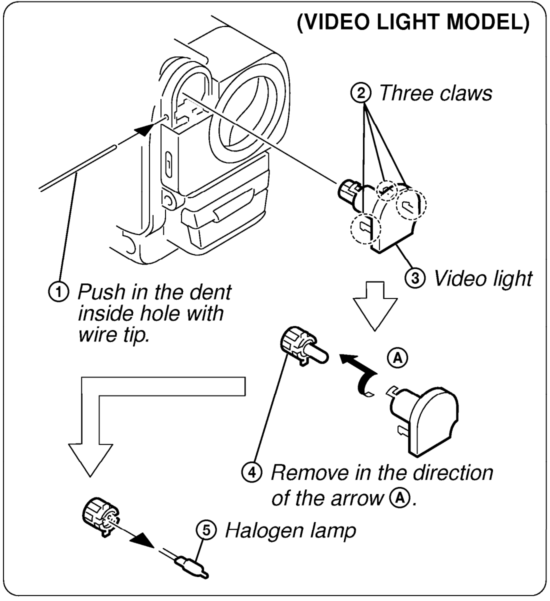
[PD-117 BOARD SERVICE POSITION]


Adjustment remote commander (RM-95)
LANC jack
Indication LCD block assembly (Super night shot model)
Liquid crystal display panel (TRV night shot model)
PD-117 board
PD-117
AC POWER ADAPTOR
AC IN
CN5502
Liquid crystal indicator module
Multi CPC jig (J-6082-311-A)
Back light (Cold cathode fluorescent tube)

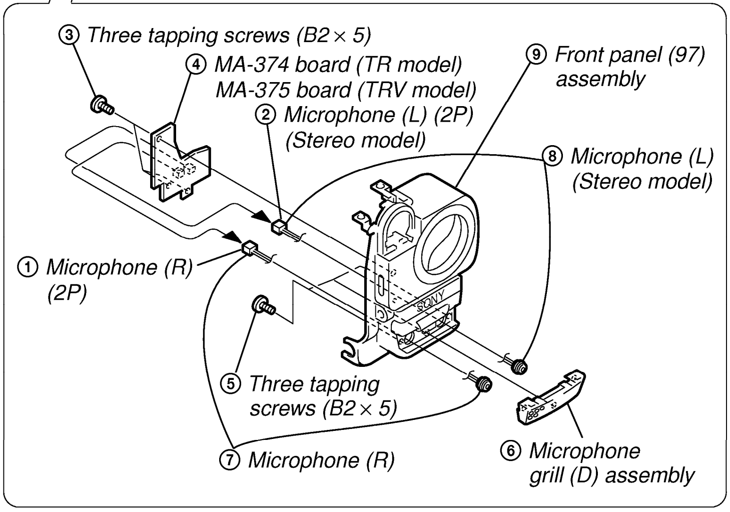
2-2. FRONT PANEL ASSEMBLY, MA-374/375 BOARD


① Two screws (M2 × 4), lock ace, p2
③ Shoe cabinet (N) (97) (No video light model)
② Claw
③ Shoe cabinet (L) (Video light model)
④ Screw (M2 × 4), lock ace, p2
⑦ FP-43 flexible board (20P)
⑤ Two screws (M2 × 4), lock ace, p2
⑥ Remove the three claws
Remove it while taking care as the FP-43 flexible cable is connected.
⑧ Front panel block assembly (No video light model)
⑧ Front panel block assembly (Video light model)

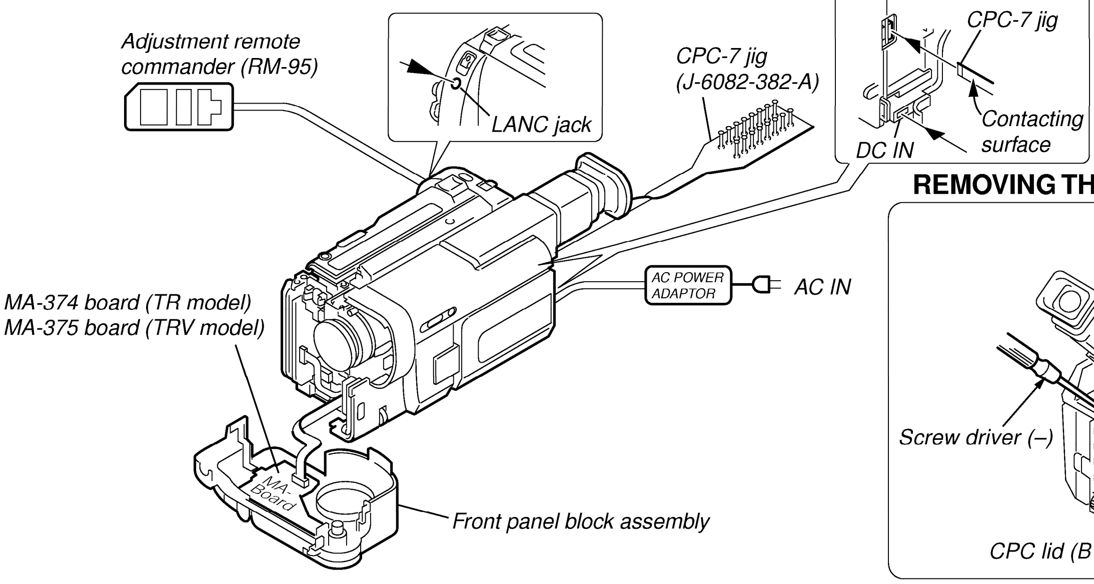
REMOVING THE VIDEO LIGHT, HALOGEN LAMP


(VIDEO LIGHT MODEL)
② Three claws
③ Video light
① Push in the dent inside hole with wire tip.
Ⓐ
④ Remove in the direction of the arrow Ⓐ.
⑤ Halogen lamp

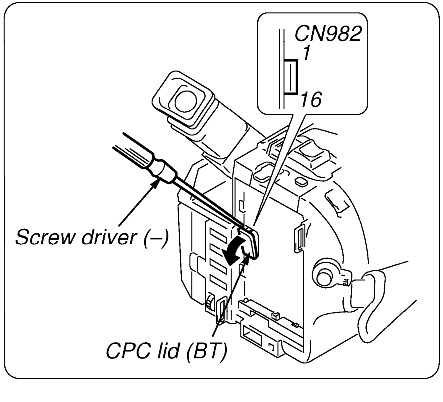
REMOVING THE MA-374/375 BOARD, MICROPHONE, FRONT PANEL (97) ASSEMBLY


③ Three tapping screws (B2 × 5)
④ MA-374 board (TR model)
MA-375 board (TRV model)
② Microphone (L) (2P)
(Stereo model)
⑨ Front panel (97) assembly
⑧ Microphone (L) (Stereo model)
① Microphone (R) (2P)
SONY
⑤ Three tapping screws (B2 × 5)
⑦ Microphone (R)
⑥ Microphone grill (D) assembly

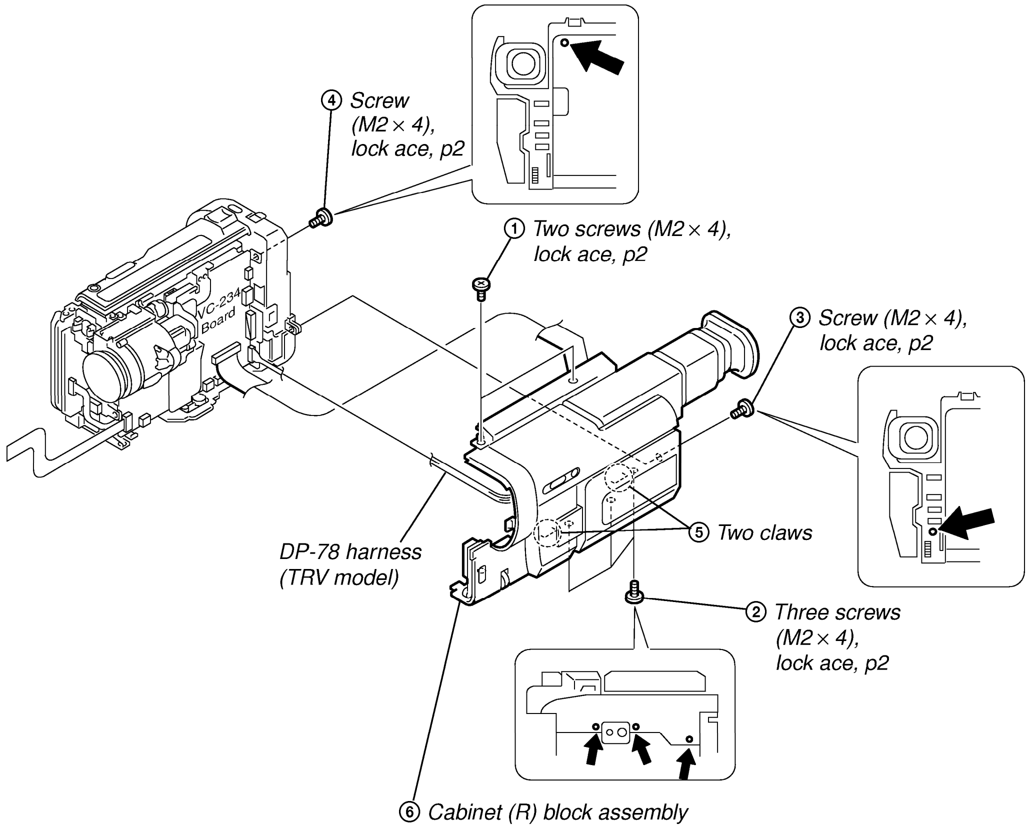
[MA-374/375 BOARD SERVICE POSITION]


Adjustment remote commander (RM-95)
LANC jack
CPC-7 jig (J-6082-382-A)
CPC-7 jig
Contacting surface
DC IN
AC POWER ADAPTOR
AC IN
MA-374 board (TR model)
MA-375 board (TRV model)
MA-Board
Front panel block assembly

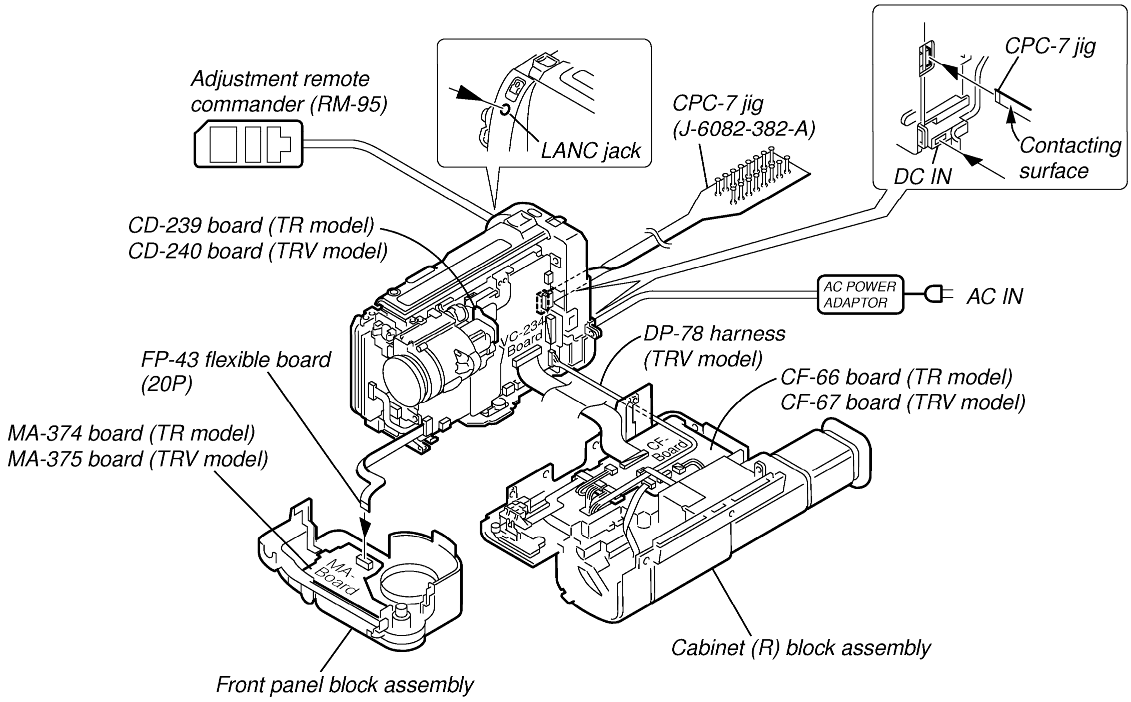
REMOVING THE CPC LID (BT)


CN982
1
16
Screw driver (–)
CPC lid (BT)

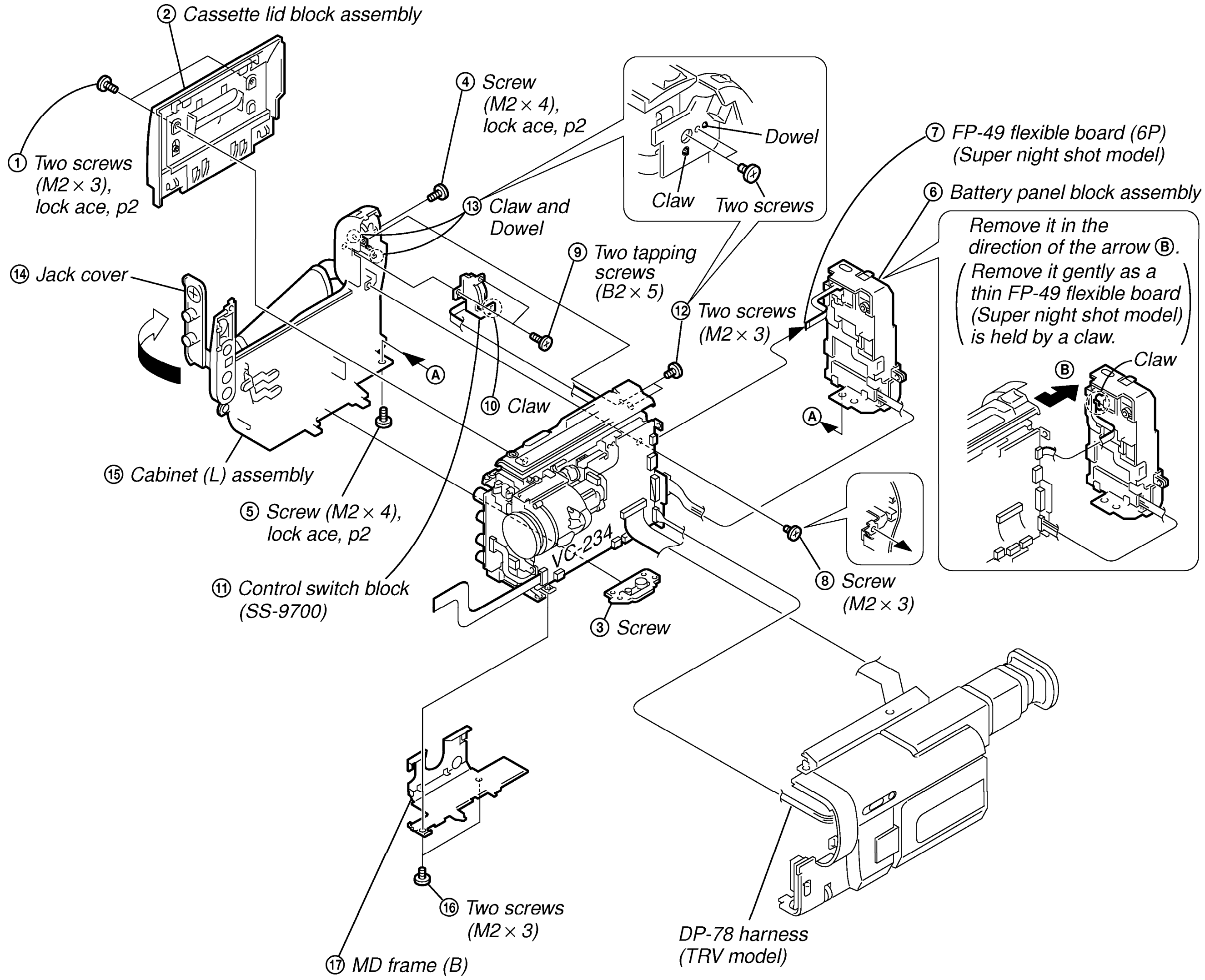
2-3. CABINET (R) BLOCK ASSEMBLY


④ Screw (M2 × 4), lock ace, p2
① Two screws (M2 × 4), lock ace, p2
③ Screw (M2 × 4), lock ace, p2
VC-234 Board
⑤ Two claws
DP-78 harness (TRV model)
② Three screws (M2 × 4), lock ace, p2
⑥ Cabinet (R) block assembly

[MA-374/375, CF-66/67, CD-239/240 BOARDS SERVICE POSITION]

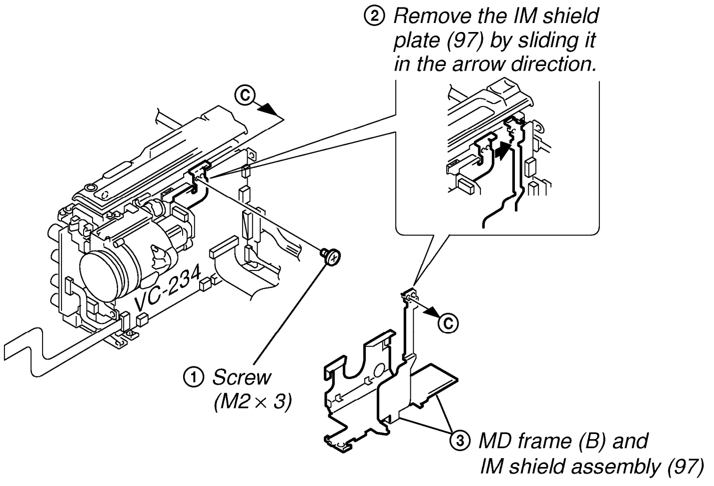

Adjustment remote commander (RM-95)
LANC jack
CPC-7 jig (J-6082-382-A)
CPC-7 jig
Contacting surface
DC IN
CD-239 board (TR model)
CD-240 board (TRV model)
AC POWER ADAPTOR
AC IN
VC-234 Board
DP-78 harness (TRV model)
FP-43 flexible board (20P)
CF-66 board (TR model)
CF-67 board (TRV model)
CF-Board
MA-374 board (TR model)
MA-375 board (TRV model)
MA-Board
Cabinet (R) block assembly
Front panel block assembly

2-4. MECHANISM DECK-1


② Cassette lid block assembly
① Two screws (M2 × 3), lock ace, p2
④ Screw (M2 × 4), lock ace, p2
⑬ Claw and Dowel
Dowel
Claw
Two screws
⑦ FP-49 flexible board (6P) (Super night shot model)
⑥ Battery panel block assembly
Remove it in the direction of the arrow Ⓑ.
Remove it gently as a thin FP-49 flexible board (Super night shot model) is held by a claw.
Claw
Ⓑ
⑭ Jack cover
⑨ Two tapping screws (B2 × 5)
⑫ Two screws (M2 × 3)
Ⓐ
⑩ Claw
⑮ Cabinet (L) assembly
⑤ Screw (M2 × 4), lock ace, p2
⑪ Control switch block (SS-9700)
VC-234
③ Screw
⑧ Screw (M2 × 3)
⑯ Two screws (M2 × 3)
⑰ MD frame (B)
DP-78 harness (TRV model)

[AEP, EE, NE, RU, UK MODEL]

Remove the MD frame (B) and IM shield assembly (97) after completing step ⑯.

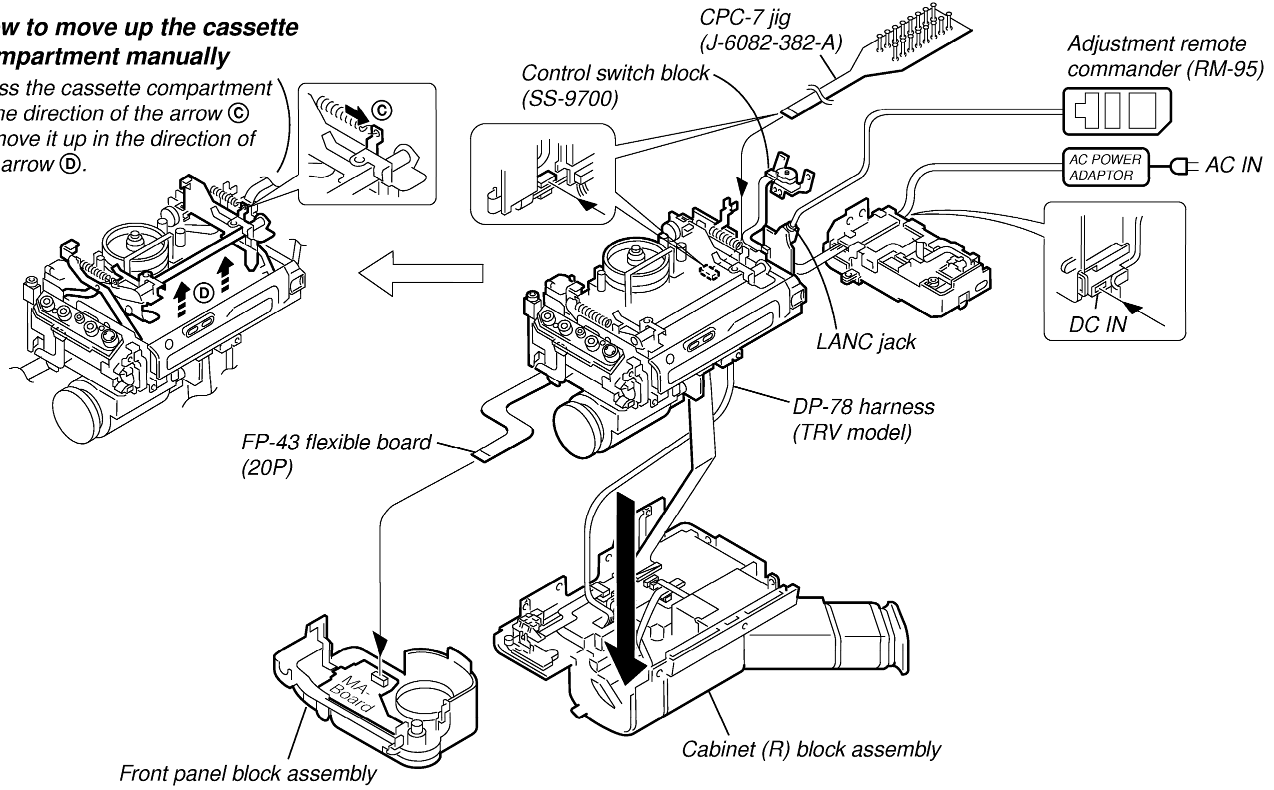

② Remove the IM shield plate (97) by sliding it in the arrow direction.
Ⓒ
VC-234
① Screw (M2 × 3)
Ⓒ
③ MD frame (B) and IM shield assembly (97)

[MECHANISM DECK SERVICE POSITION-1]

Note: *Use the parts only which can be removed easily from outside of the mechanism deck.*

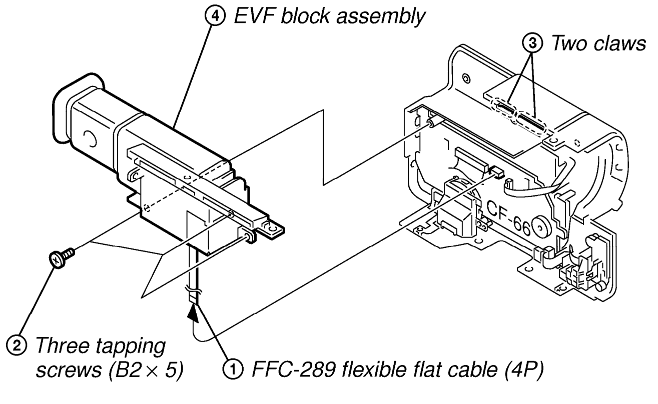
- ***How to move up the cassette compartment manually***

(Press the cassette compartment in the direction of the arrow Ⓒ to move it up in the direction of the arrow Ⓓ.)

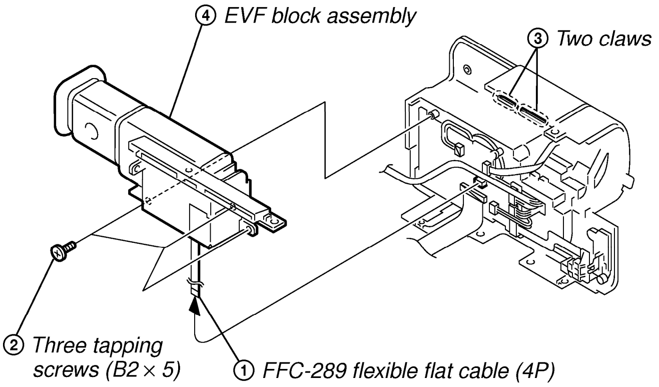

Ⓒ
Ⓓ
CPC-7 jig
(J-6082-382-A)
Control switch block
(SS-9700)
Adjustment remote commander (RM-95)
AC POWER ADAPTOR
AC IN
DC IN
LANC jack
DP-78 harness
(TRV model)
FP-43 flexible board
(20P)
MA-Board
Front panel block assembly
Cabinet (R) block assembly

2-5. EVF BLOCK ASSEMBLY

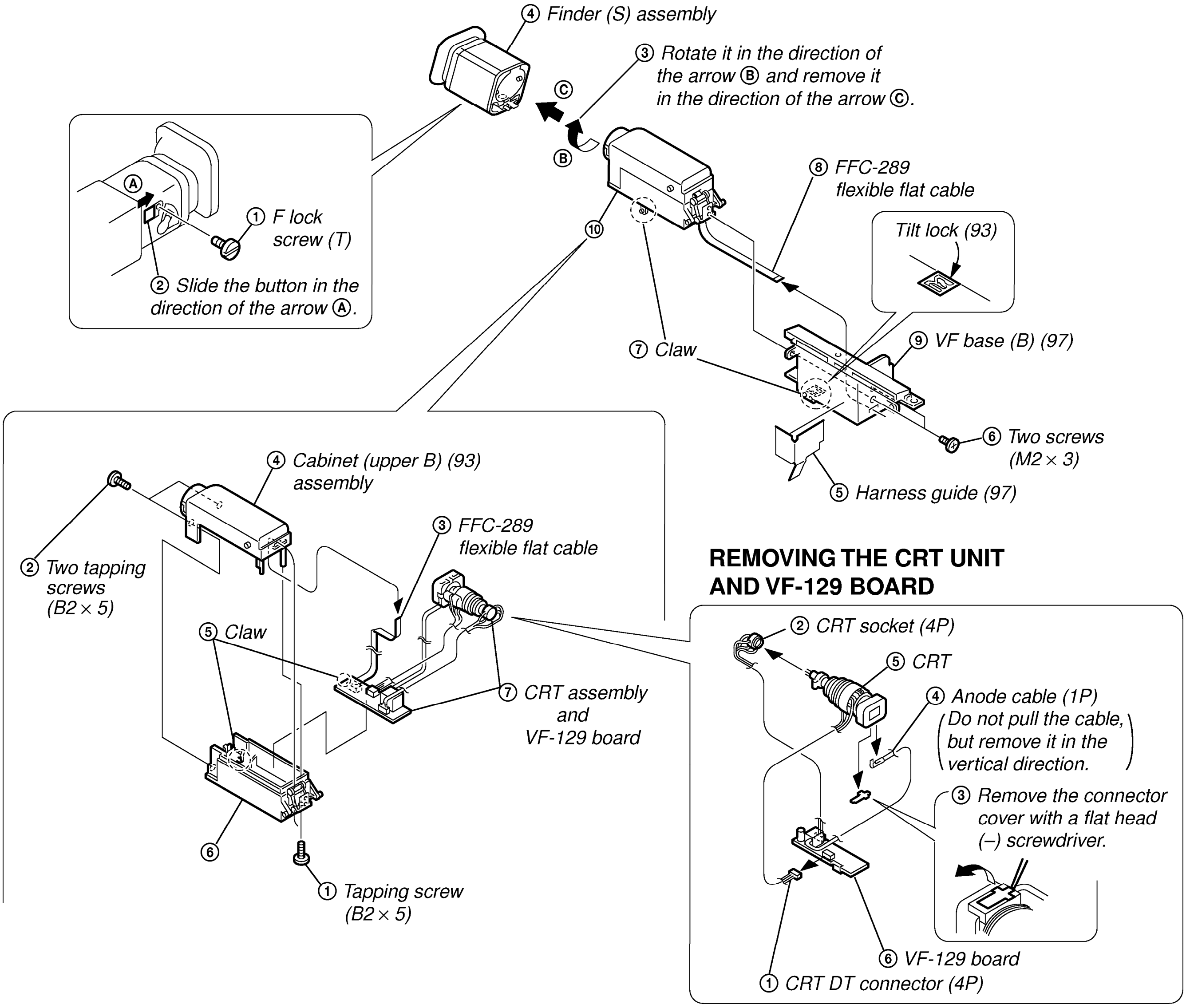
[TR MODEL]


④ EVF block assembly
③ Two claws
CF-66
② Three tapping screws (B2 × 5)
① FFC-289 flexible flat cable (4P)

[TRV MODEL]


④ EVF block assembly
③ Two claws
② Three tapping screws (B2 × 5)
① FFC-289 flexible flat cable (4P)

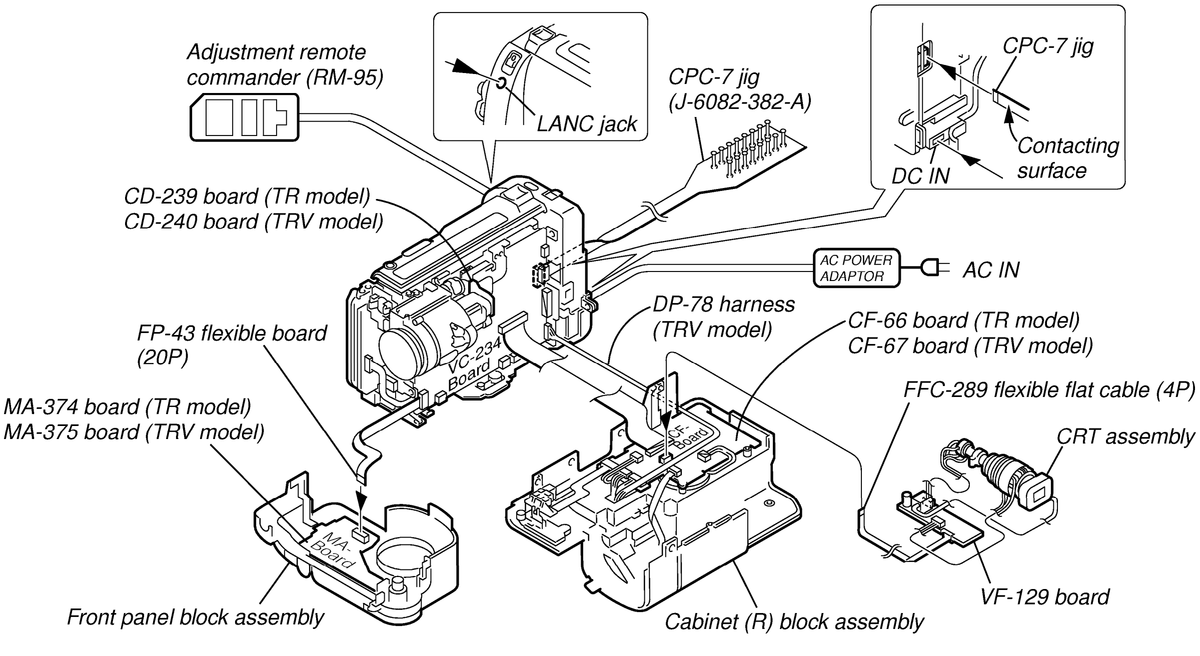
2-6. VF-129 BOARD


④ Finder (S) assembly
③ Rotate it in the direction of the arrow Ⓑ and remove it in the direction of the arrow Ⓒ.
Ⓒ
Ⓑ
Ⓐ
① F lock screw (T)
② Slide the button in the direction of the arrow Ⓐ.
⑧ FFC-289 flexible flat cable
Tilt lock (93)
⑩
⑦ Claw
⑨ VF base (B) (97)
⑥ Two screws (M2 × 3)
⑤ Harness guide (97)
④ Cabinet (upper B) (93) assembly
② Two tapping screws (B2 × 5)
③ FFC-289 flexible flat cable
⑤ Claw
⑦ CRT assembly and VF-129 board
⑥
① Tapping screw (B2 × 5)

REMOVING THE CRT UNIT AND VF-129 BOARD

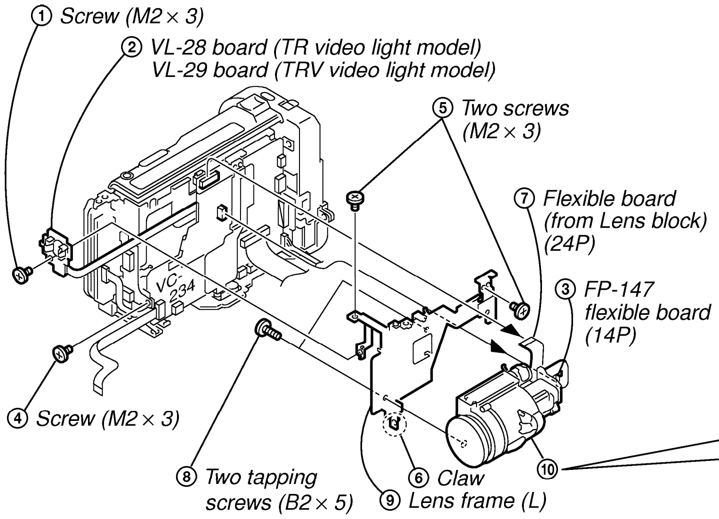
② CRT socket (4P)
⑤ CRT
④ Anode cable (1P)
(Do not pull the cable, but remove it in the vertical direction.)
③ Remove the connector cover with a flat head (–) screwdriver.
⑥ VF-129 board
① CRT DT connector (4P)

[VF-129, MA-374/375, CF-66/67, CD-239/240 BOARDS SERVICE POSITION]

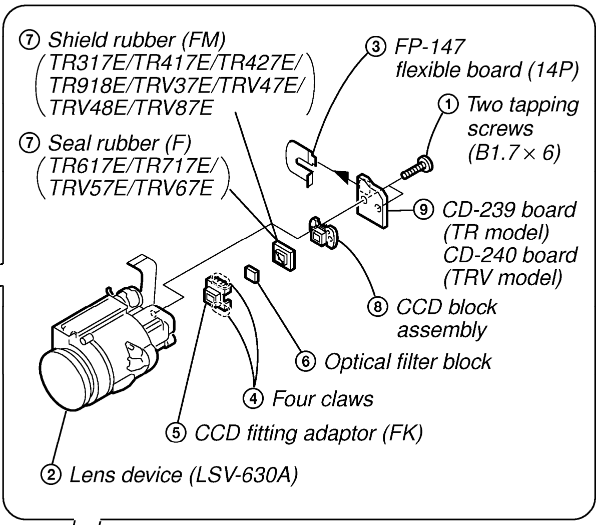

Adjustment remote commander (RM-95)
LANC jack
CPC-7 jig (J-6082-382-A)
CPC-7 jig
Contacting surface
DC IN
CD-239 board (TR model)
CD-240 board (TRV model)
AC POWER ADAPTOR
AC IN
DP-78 harness (TRV model)
FP-43 flexible board (20P)
VC-234 Board
CF-66 board (TR model)
CF-67 board (TRV model)
CF-Board
FFC-289 flexible flat cable (4P)
MA-374 board (TR model)
MA-375 board (TRV model)
CRT assembly
MA-Board
VF-129 board
Front panel block assembly
Cabinet (R) block assembly

2-7. LENS DEVICE, CD-239/240 BOARD

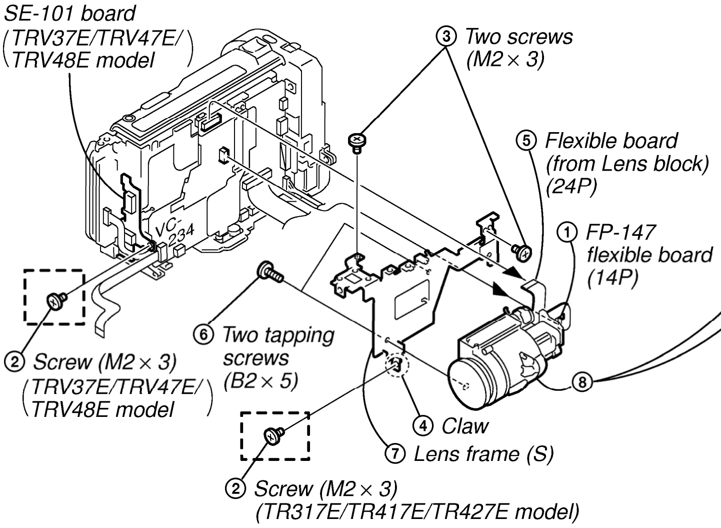
[VIDEO LIGHT MODEL]


① Screw (M2 × 3)
② VL-28 board (TR video light model)
VL-29 board (TRV video light model)
⑤ Two screws (M2 × 3)
⑦ Flexible board (from Lens block) (24P)
③ FP-147 flexible board (14P)
VC-234
④ Screw (M2 × 3)
⑧ Two tapping screws (B2 × 5)
⑥ Claw
⑨ Lens frame (L)
⑩

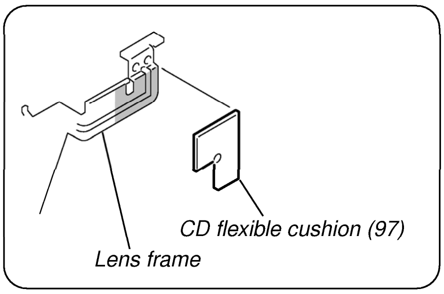
REMOVING THE LENS DEVICE, CD-239/240 BOARD


⑦ Shield rubber (FM) (TR317E/TR417E/TR427E/TR918E/TRV37E/TRV47E/TRV48E/TRV87E)
⑦ Seal rubber (F) (TR617E/TR717E/TRV57E/TRV67E)
③ FP-147 flexible board (14P)
① Two tapping screws (B1.7 × 6)
⑨ CD-239 board (TR model)
CD-240 board (TRV model)
⑧ CCD block assembly
⑥ Optical filter block
④ Four claws
⑤ CCD fitting adaptor (FK)
② Lens device (LSV-630A)

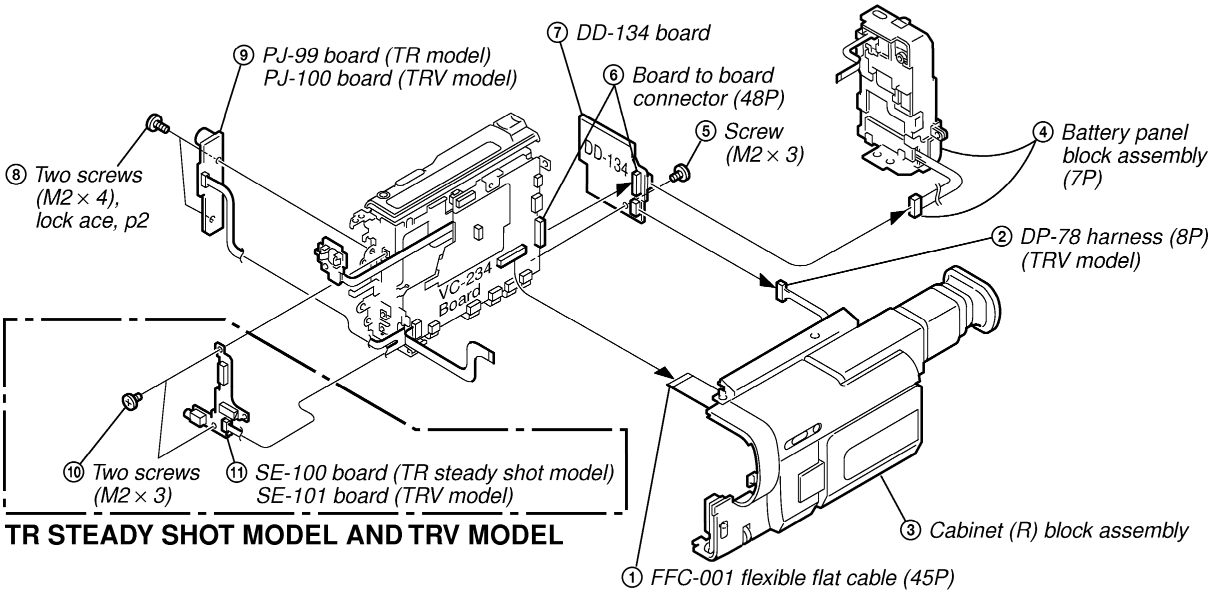
[NO VIDEO LIGHT MODEL]


SE-101 board (TRV37E/TRV47E/TRV48E model)
③ Two screws (M2 × 3)
⑤ Flexible board (from Lens block) (24P)
① FP-147 flexible board (14P)
VC-234
⑥ Two tapping screws (B2 × 5)
② Screw (M2 × 3) (TRV37E/TRV47E/TRV48E model)
④ Claw
⑦ Lens frame (S)
⑧
② Screw (M2 × 3) (TR317E/TR417E/TR427E model)

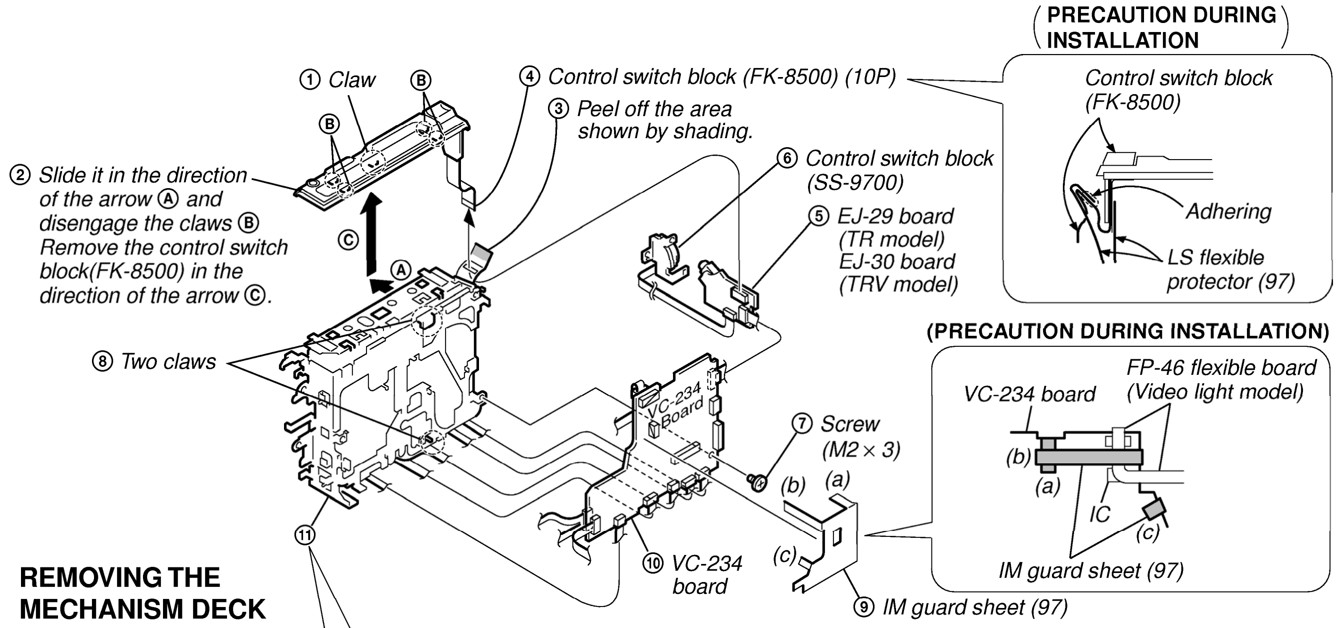
(PRECAUTION DURING INSTALLATION)


CD flexible cushion (97)
Lens frame

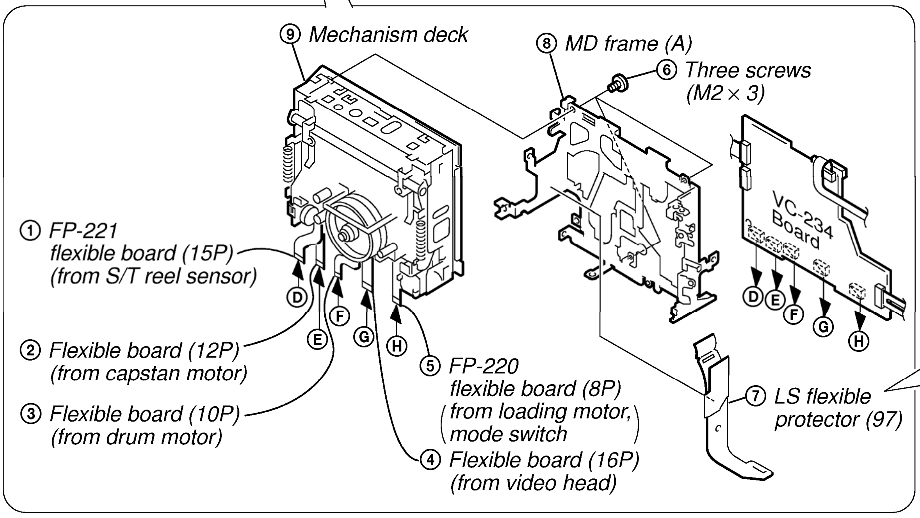
2-8. DD-134, PJ-99/100, SE-100/101 BOARDS


⑦ DD-134 board
⑨ PJ-99 board (TR model)
PJ-100 board (TRV model)
⑥ Board to board connector (48P)
⑤ Screw (M2 × 3)
④ Battery panel block assembly (7P)
⑧ Two screws (M2 × 4), lock ace, p2
DD-134
VC-234 Board
② DP-78 harness (8P) (TRV model)
⑩ Two screws (M2 × 3)
⑪ SE-100 board (TR steady shot model)
SE-101 board (TRV model)
TR STEADY SHOT MODEL AND TRV MODEL
③ Cabinet (R) block assembly
① FFC-001 flexible flat cable (45P)

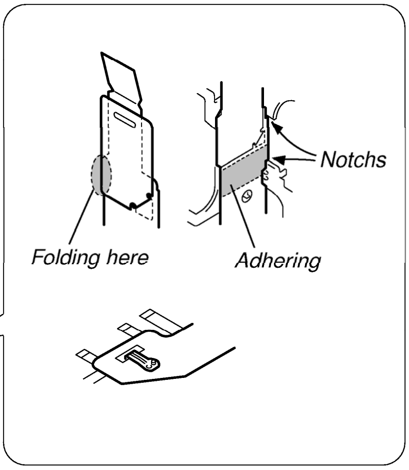
2-9. VC-234, EJ-29/30 BOARDS, MECHANISM DECK-2


① Claw
Ⓑ
Ⓑ
② Slide it in the direction of the arrow Ⓐ and disengage the claws Ⓑ Remove the control switch block(FK-8500) in the direction of the arrow Ⓒ.
Ⓒ
Ⓐ
④ Control switch block (FK-8500) (10P)
③ Peel off the area shown by shading.
⑥ Control switch block (SS-9700)
⑤ EJ-29 board (TR model) EJ-30 board (TRV model)
⑧ Two claws
VC-234 Board
⑦ Screw (M2 × 3)
(b)
(a)
(c)
⑩ VC-234 board
⑨ IM guard sheet (97)
⑪
(PRECAUTION DURING INSTALLATION)
Control switch block (FK-8500)
Adhering
LS flexible protector (97)
(PRECAUTION DURING INSTALLATION)
VC-234 board
FP-46 flexible board (Video light model)
(b)
(a)
IC
(c)
IM guard sheet (97)

REMOVING THE MECHANISM DECK

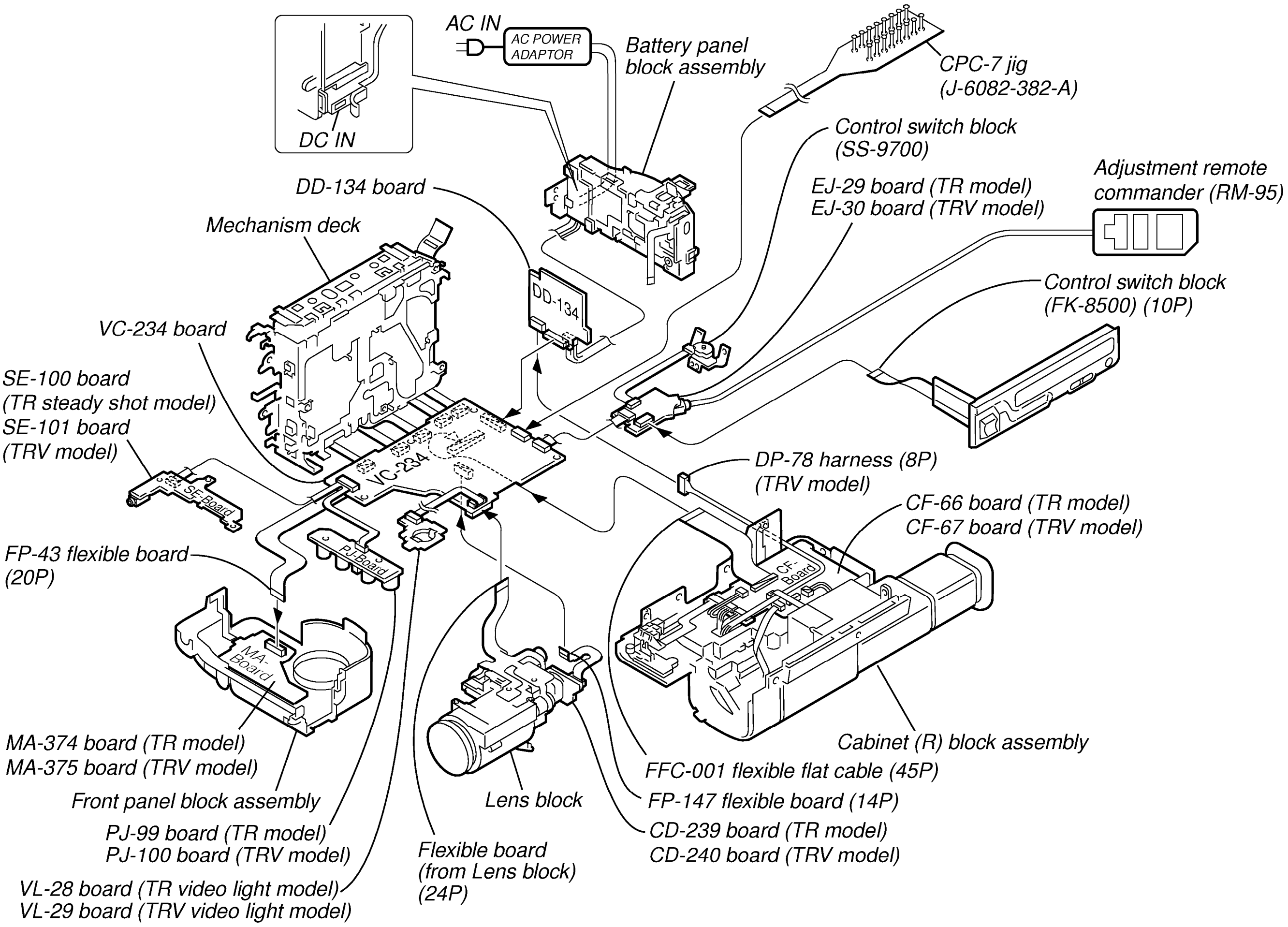

⑨ Mechanism deck
⑧ MD frame (A)
⑥ Three screws (M2 × 3)
VC-234 Board
① FP-221 flexible board (15P) (from S/T reel sensor)
② Flexible board (12P) (from capstan motor)
③ Flexible board (10P) (from drum motor)
⑤ FP-220 flexible board (8P) (from loading motor, mode switch)
④ Flexible board (16P) (from video head)
⑦ LS flexible protector (97)
Ⓓ
Ⓔ
Ⓕ
Ⓖ
Ⓗ
Ⓓ
Ⓔ
Ⓕ
Ⓖ
Ⓗ

(PRECAUTION DURING INSTALLATION)


Notchs
Folding here
Adhering

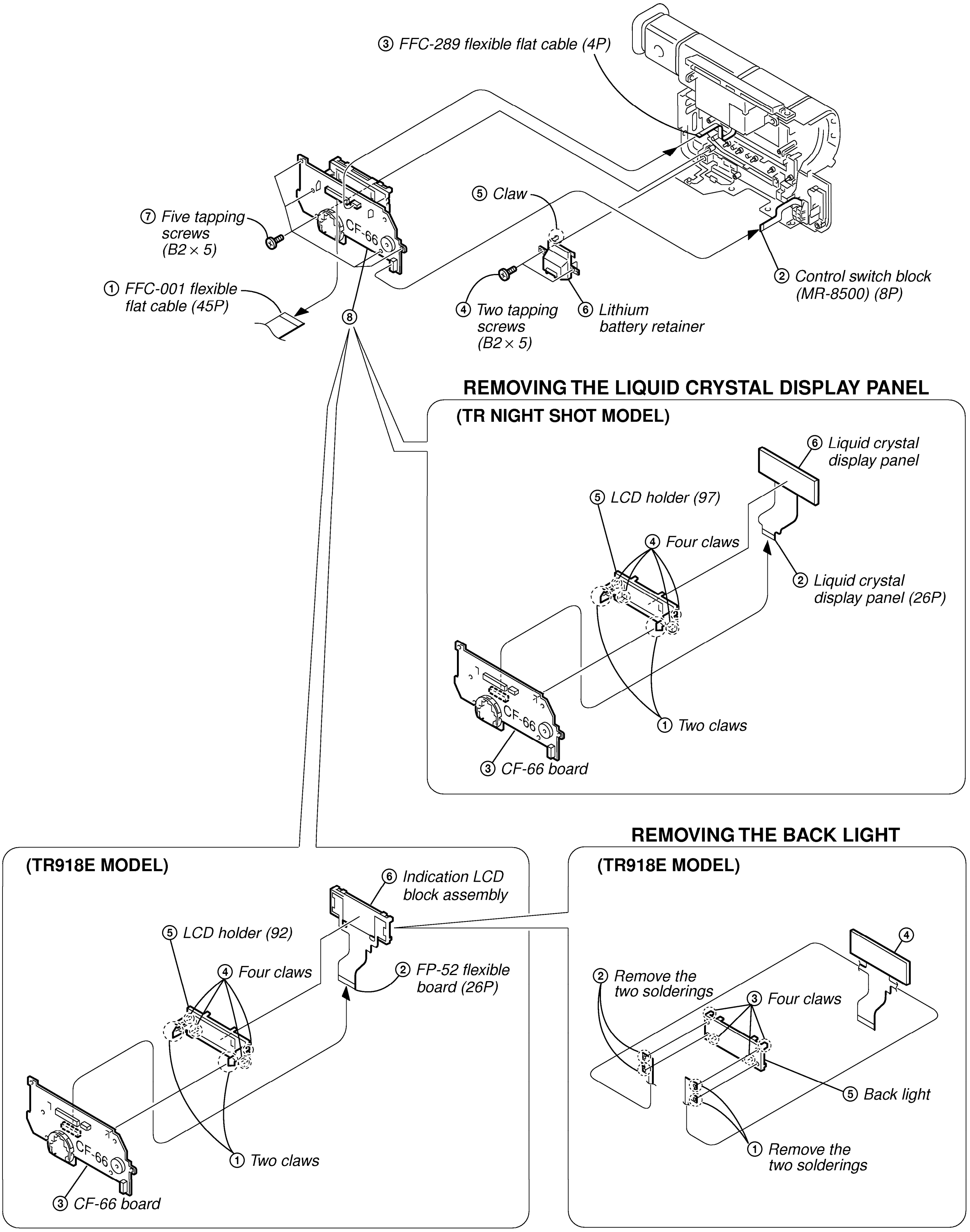
[CONNECTION DIAGRAM FOR SERVICE POSITION (Mainly for voltage measurement and check)]

(MA-374/375, CF-66/67, CD-239/240, VL-28/29, PJ-99/100, SE-100/101, EJ-29/30, DD-134, VC-234 BOARDS, MECHANISM DECK-2)



AC IN
AC POWER ADAPTOR
Battery panel block assembly
CPC-7 jig (J-6082-382-A)
DC IN
Control switch block (SS-9700)
DD-134 board
EJ-29 board (TR model)
EJ-30 board (TRV model)
Adjustment remote commander (RM-95)
Mechanism deck
DD-134
Control switch block (FK-8500) (10P)
VC-234 board
SE-100 board (TR steady shot model)
SE-101 board (TRV model)
VC-234
SE-Board
DP-78 harness (8P) (TRV model)
CF-66 board (TR model)
CF-67 board (TRV model)
FP-43 flexible board (20P)
PJ-Board
CF-Board
MA-Board
MA-374 board (TR model)
MA-375 board (TRV model)
Cabinet (R) block assembly
FFC-001 flexible flat cable (45P)
Front panel block assembly
Lens block
FP-147 flexible board (14P)
PJ-99 board (TR model)
PJ-100 board (TRV model)
CD-239 board (TR model)
CD-240 board (TRV model)
Flexible board (from Lens block) (24P)
VL-28 board (TR video light model)
VL-29 board (TRV video light model)

2-10. CF-66 BOARD, LIQUID CRYSTAL DISPLAY PANEL, BACK LIGHT (TR MODEL)


③ FFC-289 flexible flat cable (4P)
⑤ Claw
⑦ Five tapping screws (B2 × 5)
① FFC-001 flexible flat cable (45P)
⑧
④ Two tapping screws (B2 × 5)
⑥ Lithium battery retainer
② Control switch block (MR-8500) (8P)
CF-66
⑥ Liquid crystal display panel
⑤ LCD holder (97)
④ Four claws
② Liquid crystal display panel (26P)
① Two claws
③ CF-66 board
⑥ Indication LCD block assembly
⑤ LCD holder (92)
④ Four claws
② FP-52 flexible board (26P)
① Two claws
③ CF-66 board
④
② Remove the two solderings
③ Four claws
⑤ Back light
① Remove the two solderings

REMOVING THE LIQUID CRYSTAL DISPLAY PANEL

(TR NIGHT SHOT MODEL)

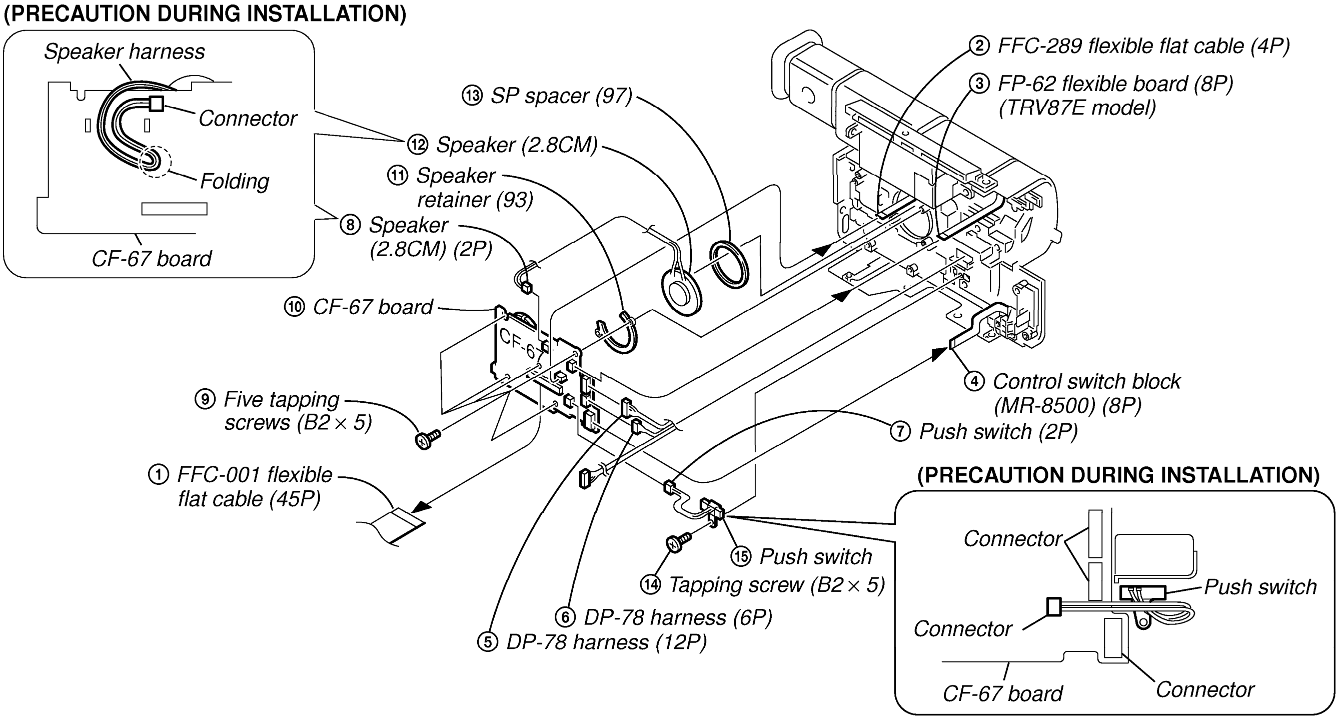
REMOVING THE BACK LIGHT

(TR918E MODEL)

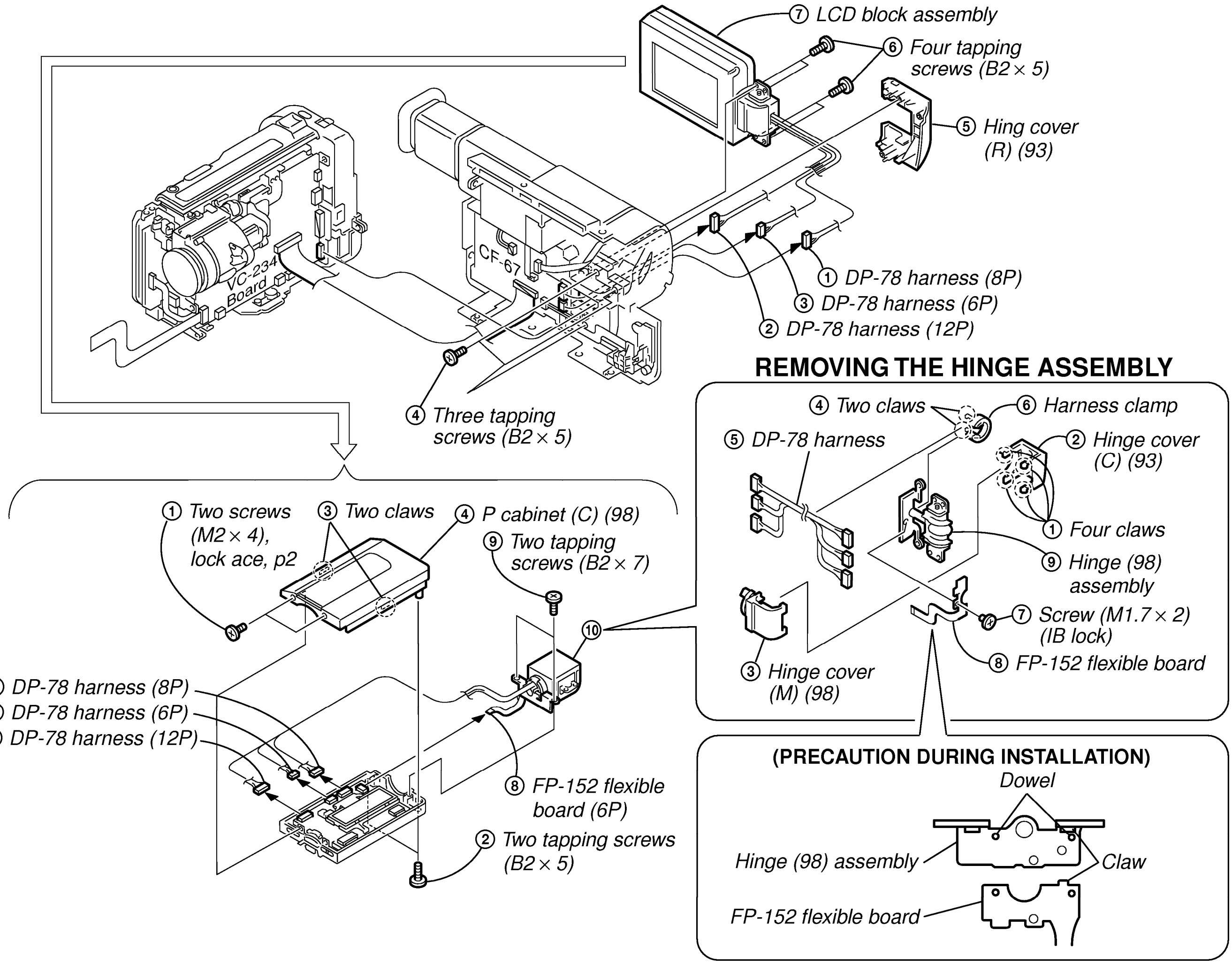
(TR918E MODEL)

REMOVING THE INDICATION LCD BLOCK ASSEMBLY

2-11. CF-67 BOARD, SPEAKER, PUSH SWITCH (TRV MODEL)


(PRECAUTION DURING INSTALLATION)
Speaker harness
Connector
Folding
CF-67 board
⑬ SP spacer (97)
⑫ Speaker (2.8CM)
⑪ Speaker retainer (93)
⑧ Speaker (2.8CM) (2P)
⑩ CF-67 board
CF-67
⑨ Five tapping screws (B2 × 5)
① FFC-001 flexible flat cable (45P)
② FFC-289 flexible flat cable (4P)
③ FP-62 flexible board (8P) (TRV87E model)
④ Control switch block (MR-8500) (8P)
⑦ Push switch (2P)
⑮ Push switch
⑭ Tapping screw (B2 × 5)
⑥ DP-78 harness (6P)
⑤ DP-78 harness (12P)
(PRECAUTION DURING INSTALLATION)
Connector
Push switch
Connector
CF-67 board
Connector

2-12. LCD BLOCK ASSEMBLY, HINGE ASSEMBLY (TRV MODEL)

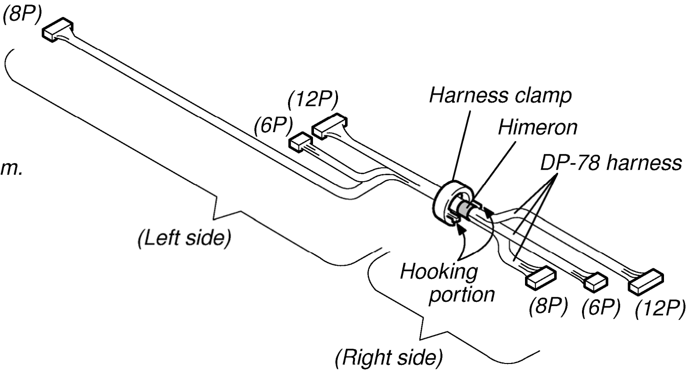

⑦ LCD block assembly
⑥ Four tapping screws (B2 × 5)
⑤ Hing cover (R) (93)
VC-234 Board
CF-67
① DP-78 harness (8P)
③ DP-78 harness (6P)
② DP-78 harness (12P)
④ Three tapping screws (B2 × 5)
① Two screws (M2 × 4), lock ace, p2
③ Two claws
④ P cabinet (C) (98)
⑨ Two tapping screws (B2 × 7)
⑩
⑦ DP-78 harness (8P)
⑥ DP-78 harness (6P)
⑤ DP-78 harness (12P)
⑧ FP-152 flexible board (6P)
② Two tapping screws (B2 × 5)
REMOVING THE HINGE ASSEMBLY
④ Two claws
⑥ Harness clamp
⑤ DP-78 harness
② Hinge cover (C) (93)
① Four claws
⑨ Hinge (98) assembly
⑦ Screw (M1.7 × 2) (IB lock)
⑧ FP-152 flexible board
③ Hinge cover (M) (98)
(PRECAUTION DURING INSTALLATION)
Dowel
Hinge (98) assembly
Claw
FP-152 flexible board

2-13. HARNESS PROCESSING OF THE HINGE ASSEMBLY (TRV MODEL)

[ASSEMBLING THE HARNESS CLAMP]

Attach the harness clamp to the DP-78 harness.

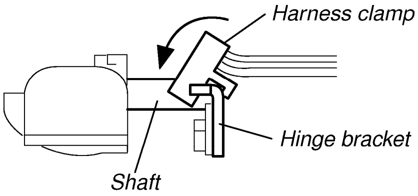
- *Place a longer harness to the left side.*
- *Place the shortest harness (8P) in the right side to the bottom.*
- *Place the hooking portion of the harness clamp to the right side.*
- *Place the harness clamp in the left of the tie band himeron that ties the three wires.*
- *Insert the DP-78 harness in the internal groove of the harness clamp.*


(8P)
(12P)
(6P)
Harness clamp
Himeron
DP-78 harness
(Left side)
Hooking portion
(8P)
(6P)
(12P)
(Right side)

[INSTALLING THE HARNESS CLAMP]

Hook the two claws of the harness clamp on the hinge bracket.
Then attach it to the shaft of the hinge assembly.

Note:
- *The harness must not be pinched.*
- *The sheet of the FP-152 flexible board must not be peeled over.*

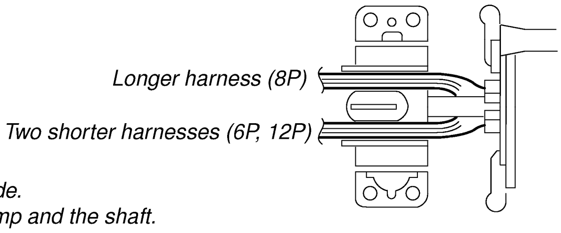

Harness clamp
Hinge bracket
Shaft

[HARNESS PROCESSING]

Fix the harness using the harness guide of the hinge assembly.

- *While holding the harness clamp, turn the hinge upside down.*
- *While being careful not to twist the harness, insert the longer harness (8P) into the shallow groove and insert the other harnesses (6P, 12P) to the deeper groove.*

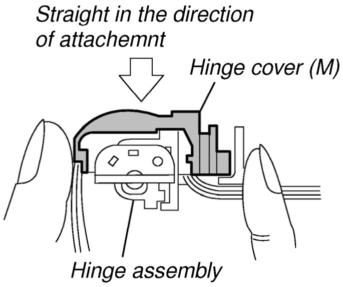
Note:
- *Be sure that the harnesses do not climb over the three ribs of the guide.*
- *Be sure that the harnesses are not pinched between the harness clamp and the shaft.*


Longer harness (8P)
Two shorter harnesses (6P, 12P)

[ATTACHING THE HINGE COVER (M)]

Attach the hinge cover (M) to the hinge assembly.

- *Hold the harness so that the harness must not come out from the groove.*
- *Be careful so that the hinge cover (M) must not contact with the switch of the FP-152 flexible board.*

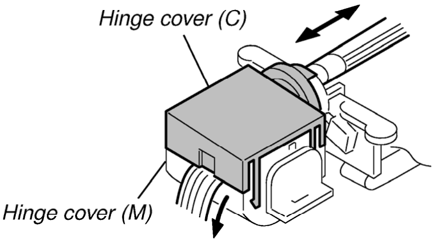

Straight in the direction of attachemnt
Hinge cover (M)
Hinge assembly

[ATTACHING THE HINGE COVER (C)]

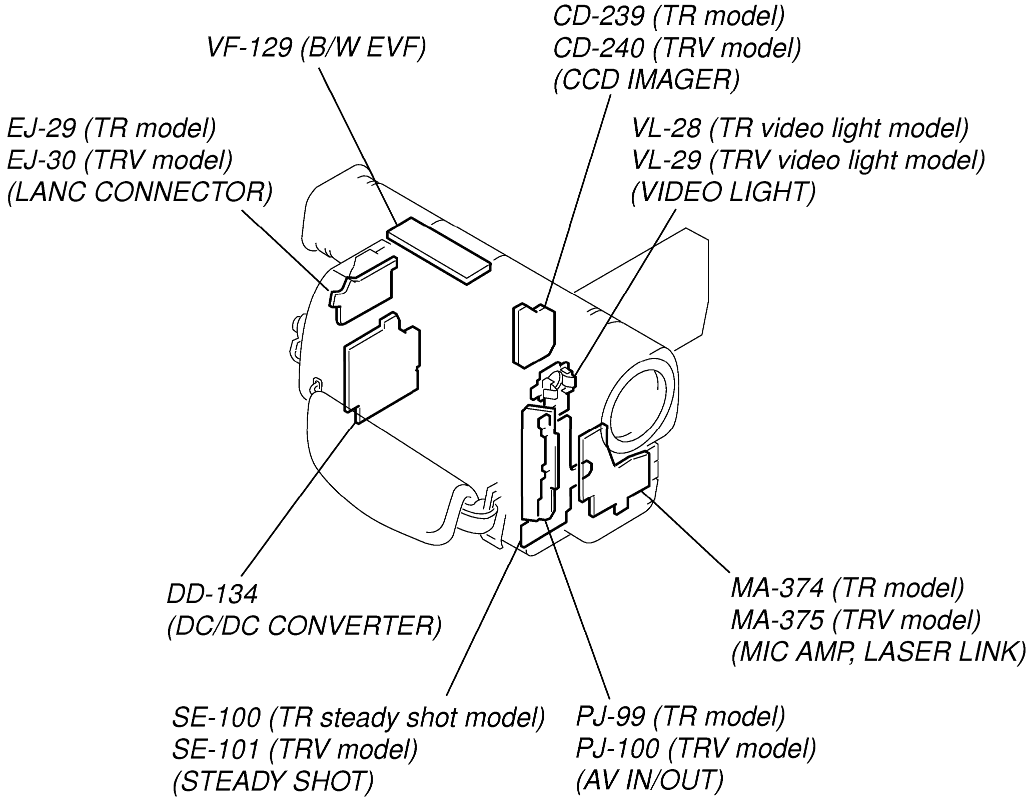
Attach the hinge cover (C) to the hinge cover (M).

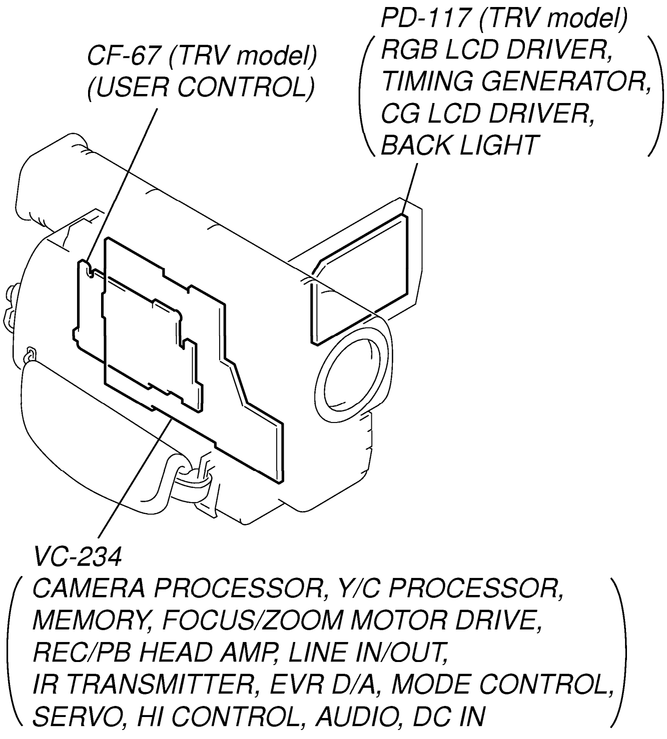
- *While holding the hinge cover (M) so as not to be dropped, turn the hinge cover (C) upside down.*
- *Route the harness inside the cutout of the hinge cover (M).*
- *Attach the hinge cover (C) straight. (Claw hooks at the four positions.)*
- *Make an attempt to move the harness gently at the entrance/exit of the hinge assembly to make sure that the harness can move.*

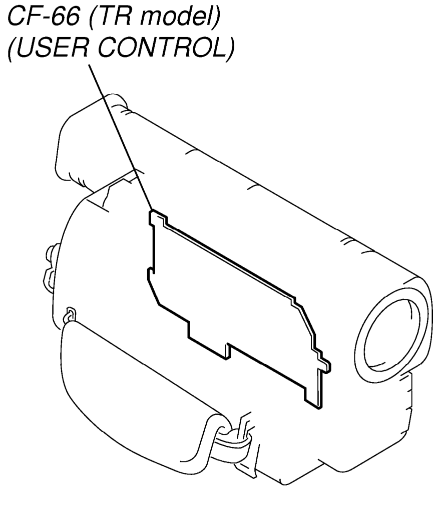
Note:
- *Be sure that the harness is not pinched by the hinge cover.*
- *Be sure that the harness can move at the entrance/exit of the hinge assembly.*


Hinge cover (C)
Hinge cover (M)

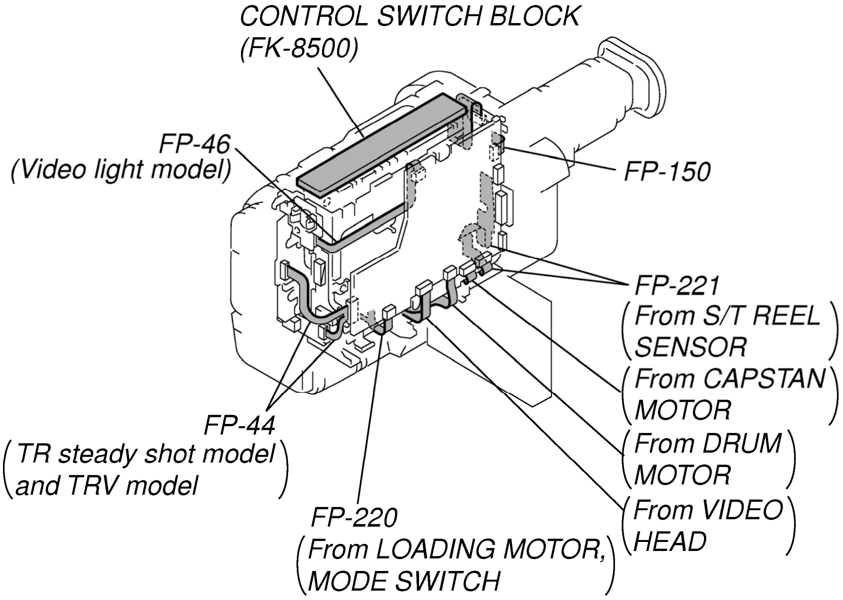
2-14. CIRCUIT BOARDS LOCATION

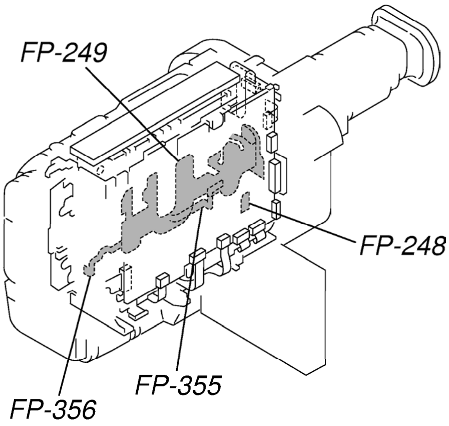

VF-129 (B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-28 (TR video light model)
VL-29 (TRV video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-100 (TR steady shot model)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

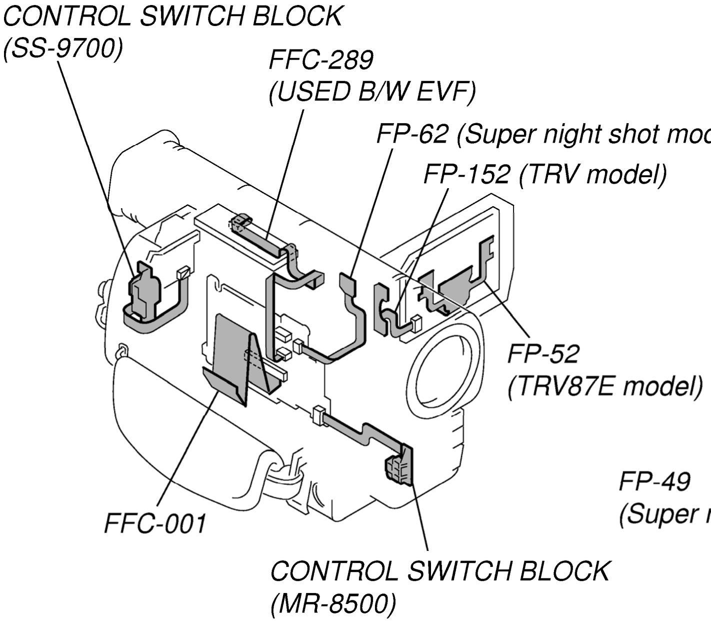

PD-117 (TRV model)
RGB LCD DRIVER,
TIMING GENERATOR,
CG LCD DRIVER,
BACK LIGHT
CF-67 (TRV model)
(USER CONTROL)
VC-234
CAMERA PROCESSOR, Y/C PROCESSOR,
MEMORY, FOCUS/ZOOM MOTOR DRIVE,
REC/PB HEAD AMP, LINE IN/OUT,
IR TRANSMITTER, EVR D/A, MODE CONTROL,
SERVO, HI CONTROL, AUDIO, DC IN

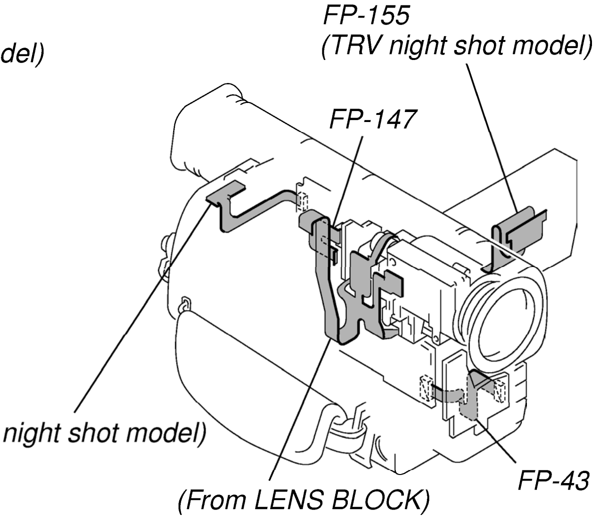

CF-66 (TR model)
(USER CONTROL)

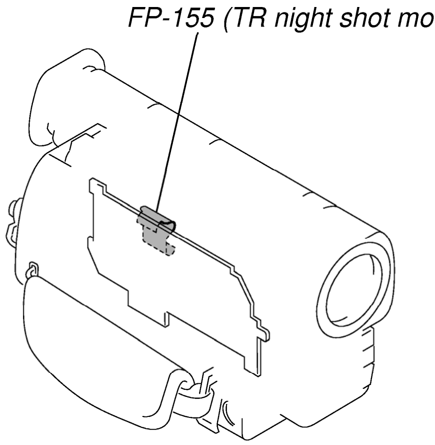
2-15. FLEXIBLE BOARDS LOCATION

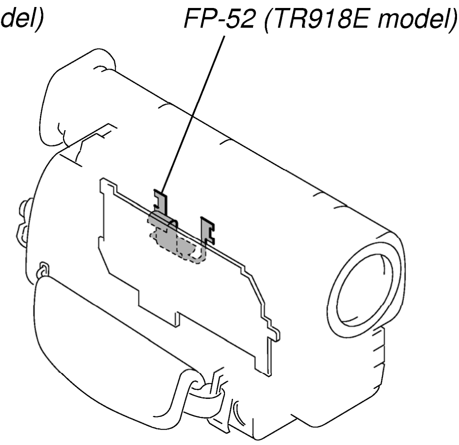

CONTROL SWITCH BLOCK
(FK-8500)
FP-46
(Video light model)
FP-150
FP-221
(From S/T REEL SENSOR)
(From CAPSTAN MOTOR)
(From DRUM MOTOR)
(From VIDEO HEAD)
FP-44
(TR steady shot model and TRV model)
FP-220
(From LOADING MOTOR, MODE SWITCH)

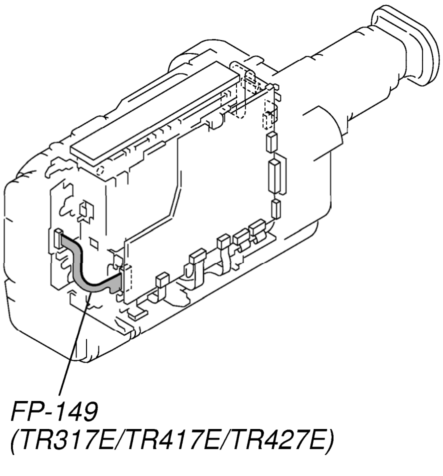

FP-249
FP-248
FP-356
FP-355


CONTROL SWITCH BLOCK
(SS-9700)
FFC-289
(USED B/W EVF)
FP-62 (Super night shot model)
FP-152 (TRV model)
FP-52
(TRV87E model)
FFC-001
CONTROL SWITCH BLOCK
(MR-8500)


FP-155
(TRV night shot model)
FP-147
FP-49
(Super night shot model)
(From LENS BLOCK)
FP-43


FP-155 (TR night shot model)


FP-52 (TR918E model)

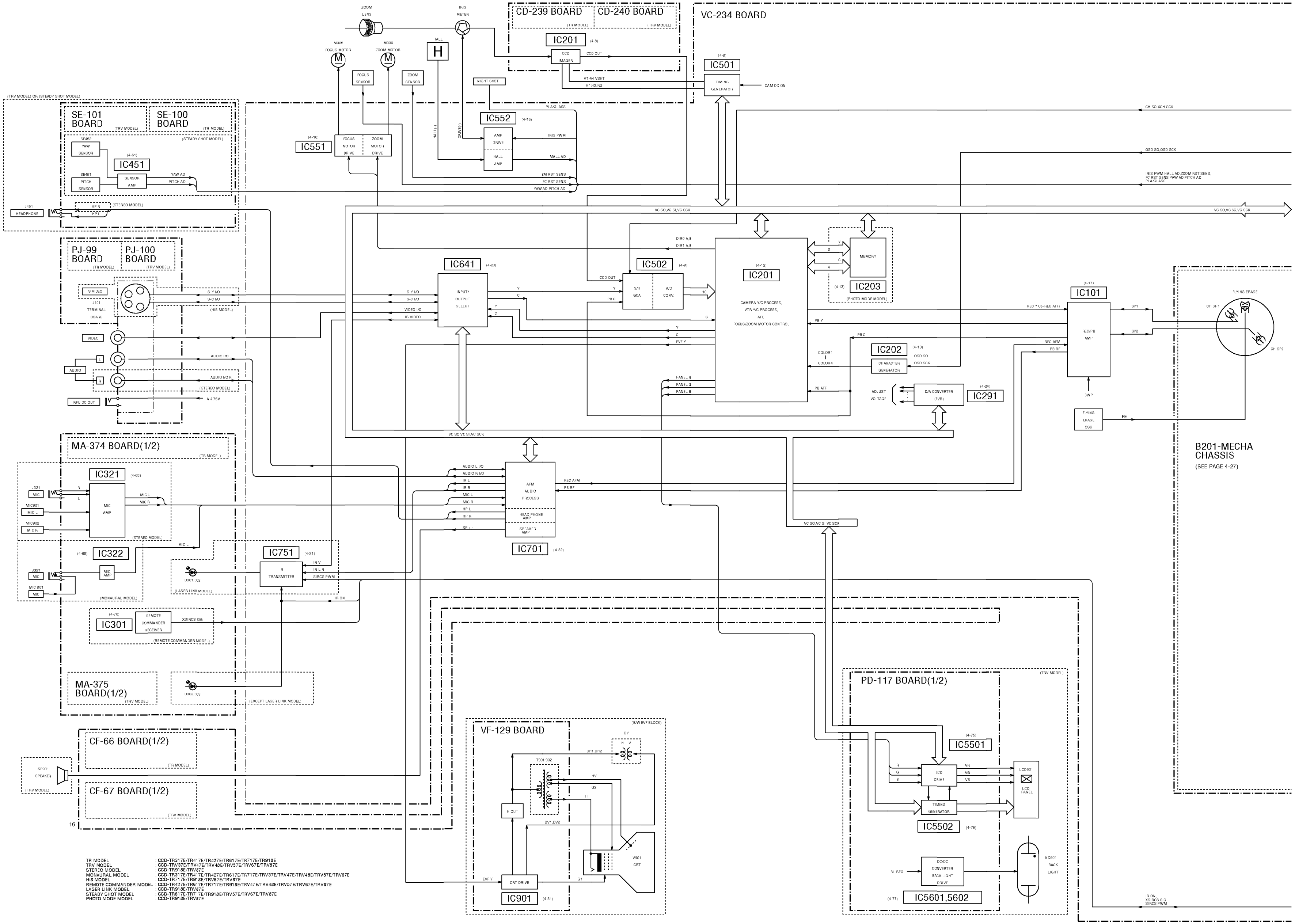

FP-149
(TR317E/TR417E/TR427E)

CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

SECTION 3
BLOCK DIAGRAMS

3-1. OVERALL BLOCK DIAGRAM (1/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.

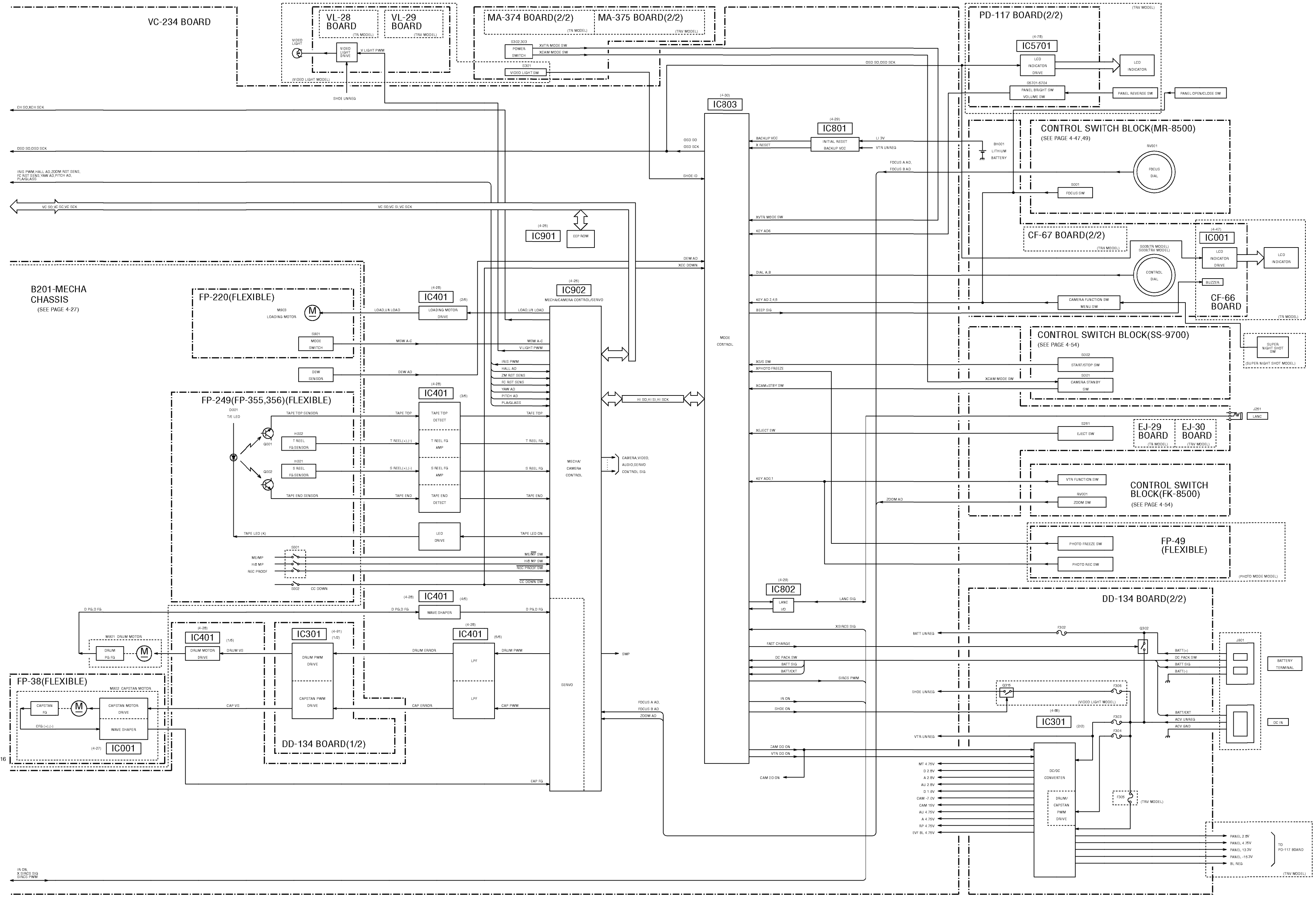

ZOOM LENS
IRIS METER
M905 FOCUS MOTOR
M906 ZOOM MOTOR
HALL
H
FOCUS SENSOR
ZOOM SENSOR
CD-239 BOARD (TR MODEL)
CD-240 BOARD (TRV MODEL)
IC201 (4-8)
CCD IMAGER
CCD OUT
V1-V4 VSHT
H1,H2,RG
NIGHT SHOT
VC-234 BOARD
IC501 (4-9)
TIMING GENERATOR
CAM DD ON
(TRV MODEL) OR (STEADY SHOT MODEL)
SE-101 BOARD (TRV MODEL)
SE-100 BOARD (TR MODEL)
(STEADY SHOT MODEL)
SE452 YAW SENSOR
SE451 PITCH SENSOR
IC451 (4-61)
SENSOR AMP
YAW AD
PITCH AD
J451 HEADPHONE
HP R
HP L
(STEREO MODEL)
IC551 (4-16)
FOCUS MOTOR DRIVE
ZOOM MOTOR DRIVE
HALL(-)
DRIVE(-)
IC552 (4-16)
AMP DRIVE
HALL AMP
PLA/GLASS
IRIS PWM
MALL AD
ZM RST SENS
FC RST SENS
YAW AD,PITCH AD
CH SO,XCH SCK
OSD SO,OSD SCK
IRIS PWM,HALL AD,ZOOM RST SENS, FC RST SENS,YAW AD,PITCH AD, PLA/GLASS
VC SO,VC SI,VC SCK
VC SO,VC SC,VC SCK
PJ-99 BOARD (TR MODEL)
PJ-100 BOARD (TRV MODEL)
S VIDEO
J101 TERMINAL BOARD
S-Y I/O
S-C I/O
(HI8 MODEL)
VIDEO
AUDIO
L
R
AUDIO I/O L
AUDIO I/O R
(STEREO MODEL)
RFU DC OUT
A 4.75V
IC641 (4-20)
INPUT/OUTPUT SELECT
VIDEO I/O
IR VIDEO
Y
C
IC502 (4-9)
S/H GCA
A/D CONV.
10
PB C
DIR0 A,B
DIR1 A,B
IC201 (4-12)
CAMERA Y/C PROCESS, VTR Y/C PROCESS, ATF, FOCUS/ZOOM MOTOR CONTROL
EVF Y
PANEL R
PANEL G
PANEL B
MEMORY
B
4
IC203 (4-13)
(PHOTO MODE MODEL)
PB Y
COLOR1
COLOR4
IC202 (4-13)
CHARACTER GENERATOR
OSD SO
OSD SCK
PB ATF
ADJUST VOLTAGE
D/A CONVERTER (EVR)
IC291 (4-24)
IC101 (4-17)
REC Y C(+REC ATF)
REC/PB AMP
REC AFM
PB RF
SWP
SP1
SP2
FLYING ERASE OSC
FE
FLYING ERASE
CH SP1
CH SP2
B201-MECHA CHASSIS
(SEE PAGE 4-27)
MA-374 BOARD(1/2) (TR MODEL)
IC321 (4-68)
J321 MIC
R
L
MIC901 MIC L
MIC902 MIC R
MIC AMP
MIC L
MIC R
(STEREO MODEL)
IC322 (4-68)
J321 MIC
MIC 901 MIC
(MONAURAL MODEL)
D301,302
(LASER LINK MODEL)
IC751 (4-21)
IR TRANSMITTER
IR V
IR L,R
SIRCS PWM
IR ON
IC301 (4-70)
REMOTE COMMANDER RECEIVER
XSIRCS SIG
(REMOTE COMMANDER MODEL)
MA-375 BOARD(1/2) (TRV MODEL)
D302,303
(EXCEPT LASER LINK MODEL)
AUDIO L I/O
AUDIO R I/O
IR L
IR R
HP L
HP R
SP +,-
AFM AUDIO PROCESS
HEAD PHONE AMP
SPEAKER AMP
IC701 (4-32)
CF-66 BOARD(1/2) (TR MODEL)
CF-67 BOARD(1/2) (TRV MODEL)
SP901 SPEAKER (TRV MODEL)
16
VF-129 BOARD
(B/W EVF BLOCK)
DY
H V
DH1,DH2
T901,902
HV
G2
H
H OUT
DV1,DV2
V901 CRT
CRT DRIVE
G1
IC901 (4-81)
PD-117 BOARD(1/2) (TRV MODEL)
IC5501 (4-75)
R
G
B
LCD DRIVE
VR
VG
VB
LCD901 LCD PANEL
TIMING GENERATOR
IC5502 (4-75)
BL REG
DC/DC CONVERTER BACK LIGHT DRIVE
IC5601,5602 (4-77)
ND901 BACK LIGHT
IR ON, XSIRCS SIG SIRCS PWM

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
STEREO MODEL : CCD-TR918E/TRV87E
MONAURAL MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E
Hi8 MODEL : CCD-TR717E/TR918E/TRV67E/TRV87E
REMOTE COMMANDER MODEL : CCD-TR427E/TR617E/TR717E/TR918E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
LASER LINK MODEL : CCD-TR918E/TRV87E
STEADY SHOT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E
PHOTO MODE MODEL : CCD-TR918E/TRV87E

3-2. OVERALL BLOCK DIAGRAM (2/2)

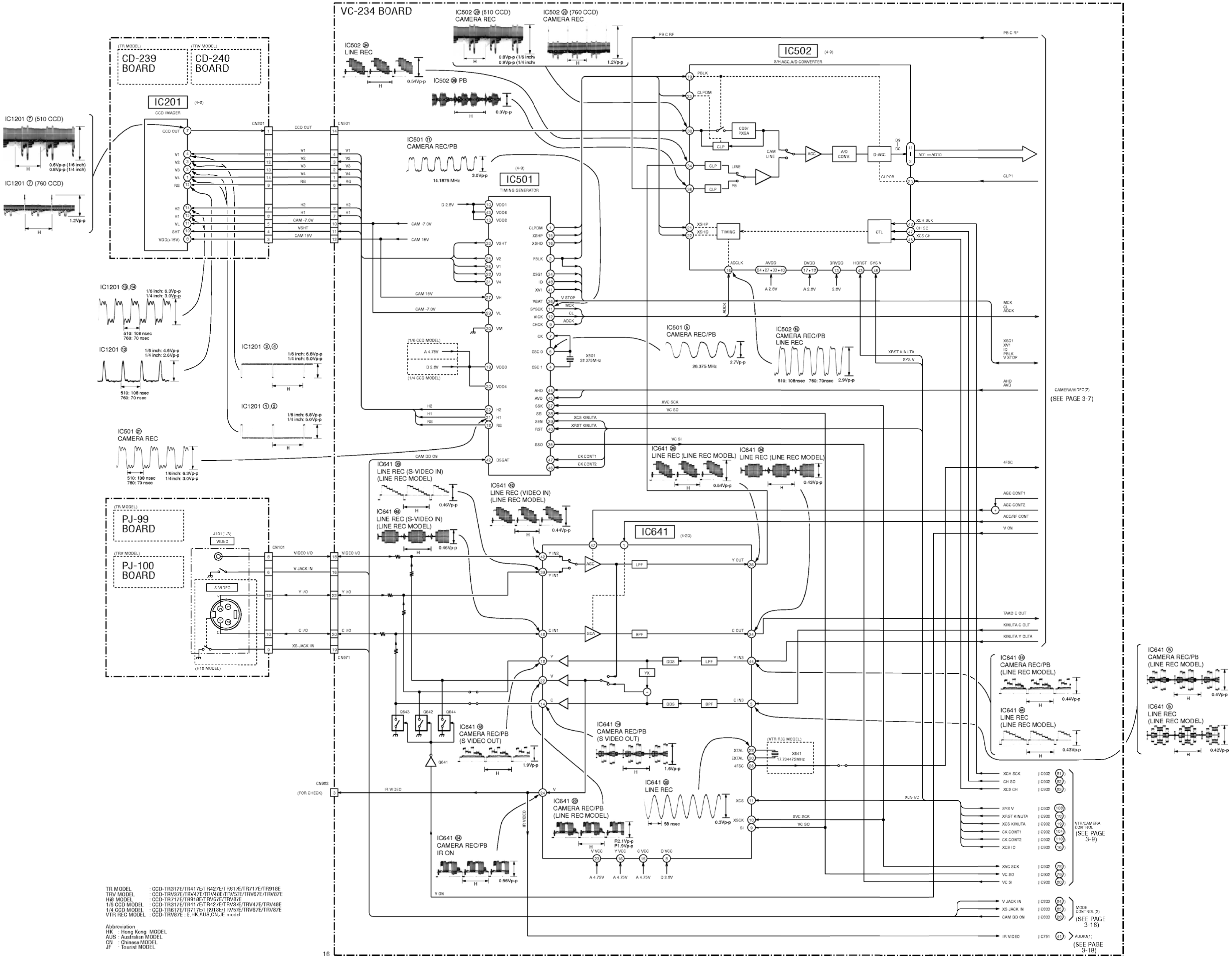
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
VIDEO LIGHT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E
SUPER NIGHT SHOT MODEL : CCD-TR918E/TRV87E
PHOTO MODE MODEL : CCD-TR918E/TRV87E


VC-234 BOARD
VL-28 BOARD (TR MODEL)
VL-29 BOARD (TRV MODEL)
VIDEO LIGHT
VIDEO LIGHT DRIVE
V LIGHT PWM
(VIDEO LIGHT MODEL)
SHOE UNREG
MA-374 BOARD(2/2) (TR MODEL)
MA-375 BOARD(2/2) (TRV MODEL)
S302,303 POWER SWITCH
XVTR MODE SW
XCAM MODE SW
S301 VIDEO LIGHT SW
CH SO,XCH SCK
OSD SO,OSD SCK
IRIS PWM,HALL AD,ZOOM RST SENS, FC RST SENS,YAW AD,PITCH AD, PLA/GLASS
VC SO,VC SC,VC SCK
VC SO,VC SI,VC SCK
(4-25) IC901 EEP ROM
(4-30) IC803 MODE CONTROL
OSD SO
OSD SCK
SHOE ID
DEW AD
XCC DOWN
(4-29) IC801 INITIAL RESET BACKUP VCC
BACKUP VCC
X RESET
LI 3V
VTR UNREG
FOCUS A AD, FOCUS B AD
XVTR MODE SW
KEY AD6
DIAL A,B
KEY AD 2,4,5
BEEP SIG
XS/S SW
XPHOTO FREEZE
XCAM+STBY SW
HI SO,HI SI,HI SCK
XEJECT SW
KEY AD0,1
ZOOM AD
B201-MECHA CHASSIS (SEE PAGE 4-27)
FP-220(FLEXIBLE)
M903 LOADING MOTOR
M
S901 MODE SWITCH
LOAD,UN LOAD
MSW A-C
(4-28) IC401 (2/5) LOADING MOTOR DRIVE
(4-25) IC902 MECHA/CAMERA CONTROL/SERVO
V LIGHT PWM
DEW SENSOR
DEW AD
IRIS PWM
HALL AD
ZM RST SENS
FC RST SENS
YAW AD
PITCH AD
PLA/GLASS
FP-249(FP-355,356)(FLEXIBLE)
D001 T/E LED
Q001
Q002
TAPE TOP SENSOR
H002 T REEL FG SENSOR
H001 S REEL FG SENSOR
TAPE END SENSOR
TAPE TOP
T REEL(+),(-)
S REEL(+),(-)
TAPE END
(4-28) IC401 (3/5)
TAPE TOP DETECT
T REEL FG AMP
S REEL FG AMP
TAPE END DETECT
TAPE TOP
T REEL FG
S REEL FG
TAPE END
MECHA/ CAMERA CONTROL
CAMERA,VIDEO, AUDIO,SERVO CONTROL SIG
TAPE LED (K)
LED DRIVE
TAPE LED ON
S001
ME/MP
Hi8 MP
REC PROOF
S002 CC DOWN
ME/MP SW
Hi8 MP SW
REC PROOF SW
CC DOWN SW
(4-28) IC401 (4/5) WAVE SHAPER
D PG,D FG
M901 DRUM MOTOR
DRUM PG FG
(4-28) IC401 (1/5) DRUM MOTOR DRIVE
DRUM VS
(4-91) (1/2) IC301
DRUM PWM DRIVE
CAPSTAN PWM DRIVE
DRUM ERROR
CAP ERROR
(4-28) IC401 (5/5)
LPF
LPF
DRUM PWM
CAP PWM
SERVO
SWP
FP-38(FLEXIBLE)
M902 CAPSTAN MOTOR
CAPSTAN FG
CAPSTAN MOTOR DRIVE
WAVE SHAPER
CFG (+),(-)
(4-27) IC001
CAP VS
CAP FG
DD-134 BOARD(1/2)
16
FOCUS A AD,
FOCUS B AD
ZOOM AD
IR ON, X SIRCS SIG SIRCS PWM
(4-29) IC802 LANC I/O
LANC SIG
XSIRCS SIG
FAST CHARGE
DC PACK SW
BATT SIG
BATT/EXT
SIRCS PWM
IR ON
SHOE ON
CAM DD ON
VTR DD ON
CAM DD ON
PD-117 BOARD(2/2) (TRV MODEL)
(4-78) IC5701
LCD INDICATOR DRIVE
LCD INDICATOR
S5701-5704 PANEL BRIGHT SW VOLUME SW
PANEL REVERSE SW
PANEL OPEN/CLOSE SW
BH001 LITHIUM BATTERY
CONTROL SWITCH BLOCK(MR-8500) (SEE PAGE 4-47,49)
RV001 FOCUS DIAL
S001 FOCUS SW
CF-67 BOARD(2/2) (TRV MODEL)
S008(TR MODEL) S009(TRV MODEL)
CONTROL DIAL
(4-47) IC001 LCD INDICATOR DRIVE
LCD INDICATOR
BUZZER
CF-66 BOARD (TR MODEL)
CAMERA FUNCTION SW MENU SW
CONTROL SWITCH BLOCK(SS-9700) (SEE PAGE 4-54)
S002 START/STOP SW
S001 CAMERA STANBY SW
XCAM MODE SW
SUPER NIGHT SHOT SW
(SUPER NIGHT SHOT MODEL)
J251 LANC
S251 EJECT SW
EJ-29 BOARD (TR MODEL)
EJ-30 BOARD (TRV MODEL)
VTR FUNCTION SW
RV001 ZOOM SW
CONTROL SWITCH BLOCK(FK-8500) (SEE PAGE 4-54)
PHOTO FREEZE SW
PHOTO REC SW
FP-49 (FLEXIBLE)
(PHOTO MODE MODEL)
DD-134 BOARD(2/2)
BATT UNREG
F302
Q302
SHOE UNREG
Q315
F306
(VIDEO LIGHT MODEL)
(4-85) IC301 (2/2)
F303
F304
VTR UNREG
J901
BATT(+)
DC PACK SW
BATT SIG
BATT(-)
BATTERY TERMINAL
BATT/EXT
ACV UNREG
ACV GND
DC IN
MT 4.75V
D 2.8V
A 2.8V
AU 2.8V
D 1.9V
CAM -7.0V
CAM 15V
AU 4.75V
A 4.75V
RP 4.75V
EVF BL 4.75V
DC/DC CONVERTER
DRUM/ CAPSTAN PWM DRIVE
F305 (TRV MODEL)
PANEL 2.8V
PANEL 4.75V
PANEL 13.3V
PANEL -15.3V
BL REG
TO PD-117 BOARD
(TRV MODEL)

3-3. CAMERA/VIDEO BLOCK DIAGRAM (1/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
CD-239 BOARD
CD-240 BOARD
IC201 (4-8)
CCD IMAGER
IC1201 ⑦ (510 CCD)
IC1201 ⑦ (760 CCD)
IC502 (4-9)
S/H,AGC,A/D CONVERTER
IC501 (4-9)
TIMING GENERATOR
IC641 (4-20)
PJ-99 BOARD
PJ-100 BOARD
CAMERA/VIDEO(2) (SEE PAGE 3-7)
VTR/CAMERA CONTROL (SEE PAGE 3-9)
MODE CONTROL(2) (SEE PAGE 3-16)
AUDIO(1) (SEE PAGE 3-18)

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
Hi8 MODEL : CCD-TR717E/TR918E/TRV67E/TRV87E
1/6 CCD MODEL : CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E
1/4 CCD MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E
VTR REC MODEL : CCD-TRV87E : E,HK,AUS,CN,JE model

Abbreviation
HK : Hong Kong MODEL
AUS : Australian MODEL
CN : Chinese MODEL
JE : Tourist MODEL

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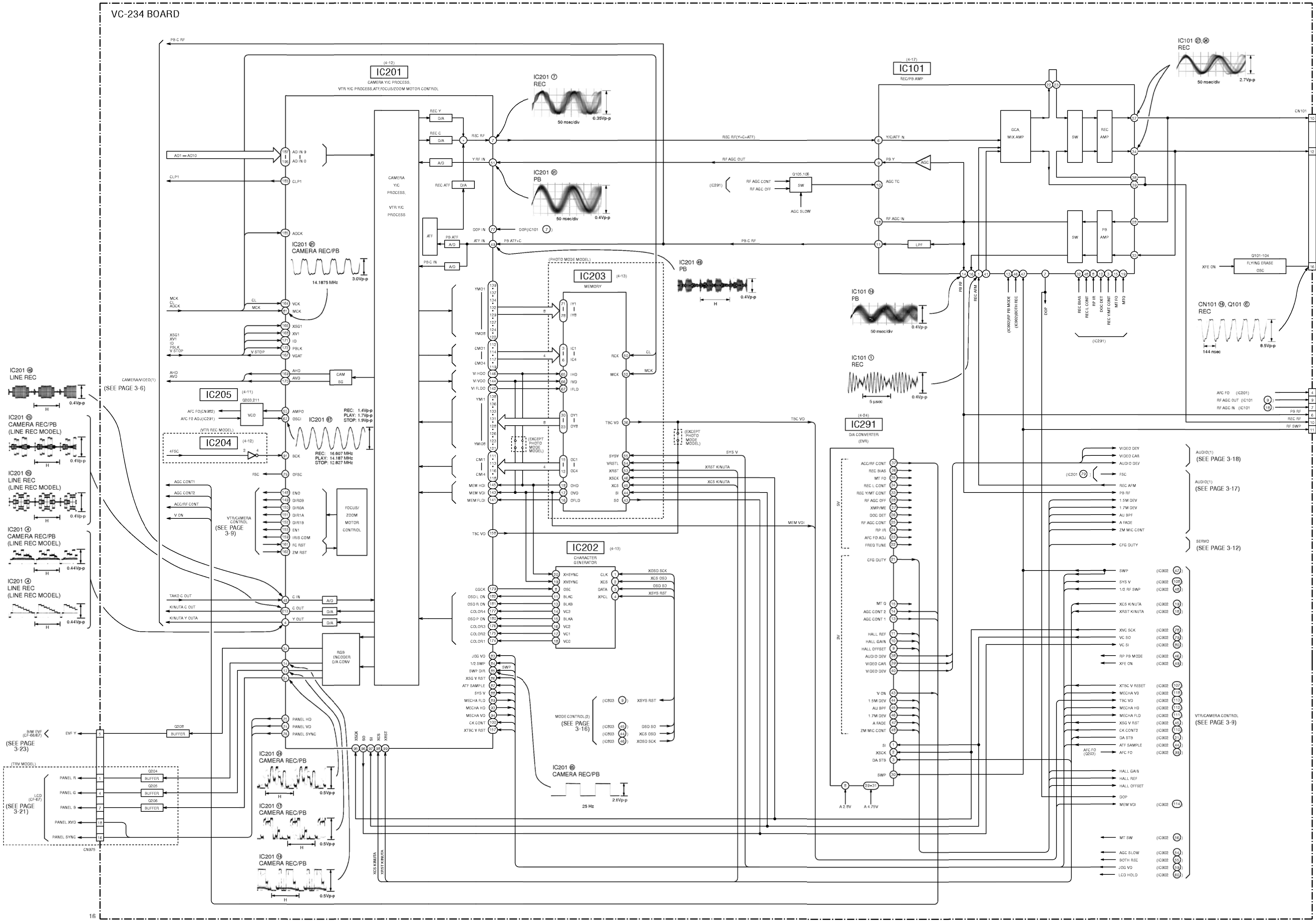
3-4. CAMERA/VIDEO BLOCK DIAGRAM (2/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.

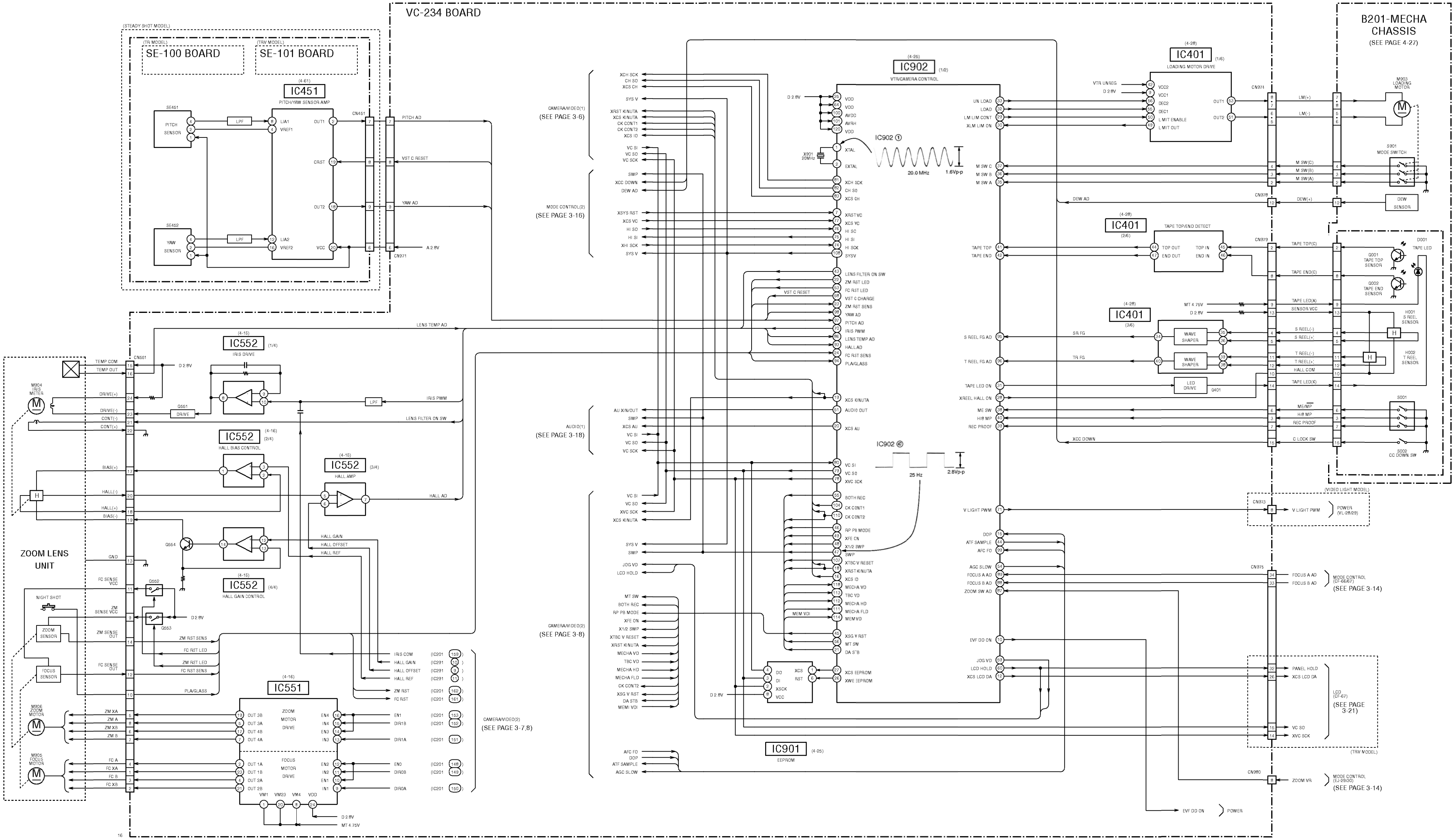

VC-234 BOARD
IC201 (4-12)
CAMERA Y/C PROCESS, VTR Y/C PROCESS,ATF,FOCUS/ZOOM MOTOR CONTROL
CAMERA Y/C PROCESS, VTR Y/C PROCESS
IC101 (4-17)
REC/PB AMP
IC203 (4-13)
MEMORY
IC202 (4-13)
CHARACTER GENERATOR
IC205 (4-11)
IC204 (4-12)
IC291 (4-24)
D/A CONVERTER (EVR)
FOCUS/ZOOM MOTOR CONTROL
RGB ENCODER D/A CONV
CAM SG
VCO
AGC
GCA, MIX AMP
SW
REC AMP
PB AMP
LPF
FLYING ERASE OSC
Q101-104
Q105,106
CN101
VIDEO HEAD
CH SP1
CH SP2
FLYING ERASE
IC201 ⑦ REC
0.35Vp-p
50 nsec/div
IC201 ⑱ PB
0.4Vp-p
IC201 ⑮ CAMERA REC/PB
14.1875 MHz
3.0Vp-p
IC201 ㊽ PB
0.4Vp-p
IC101 ⑭ PB
IC101 ① REC
5 μsec
IC101 ㉗,㉘ REC
2.7Vp-p
CN101 ⑲, Q101 Ⓒ REC
144 nsec
6.5Vp-p
IC201 ⑰
REC: 1.4Vp-p
PLAY: 1.7Vp-p
STOP: 1.9Vp-p
REC: 16.607 MHz
PLAY: 14.187 MHz
STOP: 12.827 MHz
IC201 ④ LINE REC
0.4Vp-p
IC201 ⑤ CAMERA REC/PB (LINE REC MODEL)
IC201 ⑥ LINE REC (LINE REC MODEL)
IC201 ④ CAMERA REC/PB (LINE REC MODEL)
0.44Vp-p
IC201 ④ LINE REC (LINE REC MODEL)
IC201 ㉔ CAMERA REC/PB
IC201 ㉗ CAMERA REC/PB
IC201 ㉘ CAMERA REC/PB
0.5Vp-p
IC201 ㊿ CAMERA REC/PB
25 Hz
2.6Vp-p
(SEE PAGE 3-6)
(SEE PAGE 3-9)
(SEE PAGE 3-16)
(SEE PAGE 3-18)
(SEE PAGE 3-17)
(SEE PAGE 3-12)
(SEE PAGE 3-23)
(SEE PAGE 3-21)
(PHOTO MODE MODEL)
(VTR REC MODEL)
(TRV MODEL)
B/W EVF (CF-66/67)
LCD (CF-67)
CN975
CN952 (FOR CHECK)
AUDIO(1)
SERVO
VTR/CAMERA CONTROL
MODE CONTROL(2)
BUFFER

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV57E/TRV67E/TRV87E
VTR REC MODEL : CCD-TRV87E : E,HK,AUS,CN,JE model
PHOTO MODE MODEL : CCD-TR918E/TRV87E

Abbreviation
HK : Hong Kong MODEL
AUS : Australian MODEL
CN : Chinese MODEL
JE : Tourist MODEL

3-5. VTR/CAMERA CONTROL BLOCK DIAGRAM

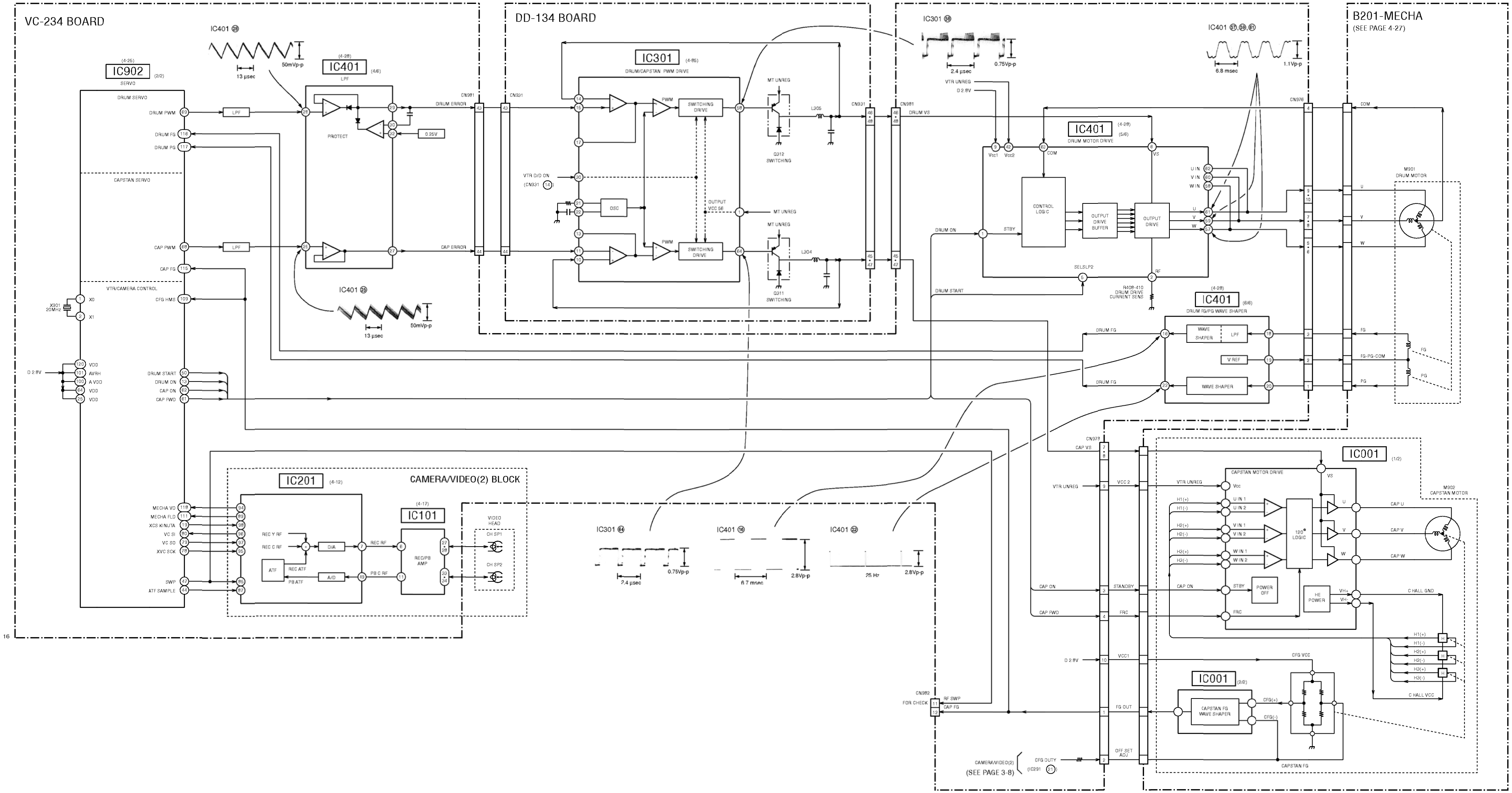
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
(STEADY SHOT MODEL)
(TR MODEL)
SE-100 BOARD
(TRV MODEL)
SE-101 BOARD
IC451
PITCH/YAW SENSOR AMP
SE451
PITCH SENSOR
SE452
YAW SENSOR
LPF
CN451
CN971
PITCH AD
VST C RESET
YAW AD
A 2.8V
ZOOM LENS UNIT
CN551
TEMP COM
TEMP OUT
M904 IRIS METER
DRIVE(+)
DRIVE(-)
CONT(-)
CONT(+)
BIAS(+)
HALL(-)
HALL(+)
BIAS(-)
GND
FC SENSE VCC
NIGHT SHOT
ZM SENSE VCC
ZOOM SENSOR
ZM SENSE OUT
FOCUS SENSOR
FC SENSE OUT
M906 ZOOM MOTOR
ZM XA
ZM A
ZM XB
ZM B
M905 FOCUS MOTOR
FC A
FC XA
FC B
FC XB
IC552
IRIS DRIVE
Q551 DRIVE
IC552
HALL BIAS CONTROL
IC552
HALL AMP
IC552
HALL GAIN CONTROL
Q554
Q552
Q553
D 2.8V
LENS TEMP AD
IRIS PWM
LENS FILTER ON SW
HALL AD
HALL GAIN
HALL OFFSET
HALL REF
ZM RST SENS
FC RST LED
ZM RST LED
FC RST SENS
PL/GLASS
IC551
ZOOM MOTOR DRIVE
FOCUS MOTOR DRIVE
IRIS COM
HALL GAIN
HALL OFFSET
HALL REF
ZM RST
FC RST
EN1
DIR1B
DIR1A
EN0
DIR0B
DIR0A
D 2.8V
MT 4.75V
CAMERA/VIDEO(2)
(SEE PAGE 3-7,8)
CAMERA/VIDEO(1)
(SEE PAGE 3-6)
MODE CONTROL(2)
(SEE PAGE 3-16)
AUDIO(1)
(SEE PAGE 3-18)
CAMERA/VIDEO(3)
(SEE PAGE 3-8)
IC902
VTR/CAMERA CONTROL
X901 20MHz
IC902 ①
20.0 MHz
1.6Vp-p
IC902 ⑥
25 Hz
2.8Vp-p
IC901
EEPROM
IC401
LOADING MOTOR DRIVE
IC401
TAPE TOP/END DETECT
IC401
WAVE SHAPER
WAVE SHAPER
LED DRIVE
Q401
B201-MECHA CHASSIS
(SEE PAGE 4-27)
M903 LOADING MOTOR
S901 MODE SWITCH
DEW SENSOR
D001 TAPE LED
Q001 TAPE TOP SENSOR
Q002 TAPE END SENSOR
H001 S REEL SENSOR
H002 T REEL SENSOR
S001
S002 CC DOWN SW
CN974
CN976
CN979
LM(+)
LM(-)
M SW(C)
M SW(B)
M SW(A)
DEW(+)
TAPE TOP(C)
TAPE END(C)
TAPE LED(A)
SENSOR VCC
S REEL(-)
S REEL(+)
T REEL(-)
T REEL(+)
HALL COM
TAPE LED(K)
ME/MP
Hi8 MP
REC PROOF
C LOCK SW
(VIDEO LIGHT MODEL)
CN973
V LIGHT PWM
POWER (VL-28/29)
CN975
FOCUS A AD
FOCUS B AD
MODE CONTROL (CF-66/67)
(SEE PAGE 3-14)
PANEL HOLD
XCS LCD DA
VC SO
XVC SCK
LCD (CF-67)
(SEE PAGE 3-21)
(TRV MODEL)
CN980
ZOOM VR
MODE CONTROL (SJ-29/30)
(SEE PAGE 3-14)
EVF DD ON
POWER

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
STEADY SHOT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E
VIDEO LIGHT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E

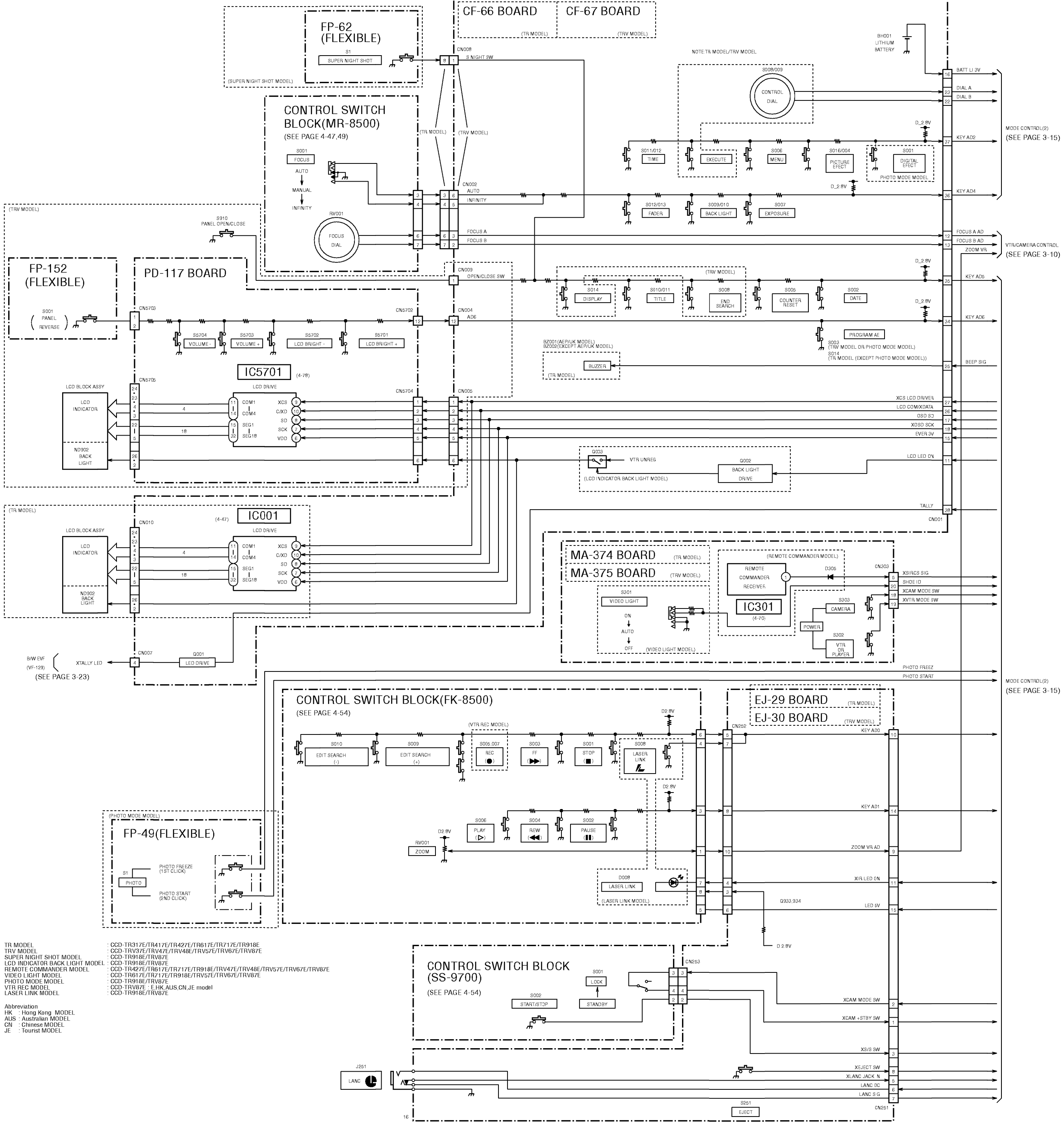
3-6. SERVO BLOCK DIAGRAM

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
IC401 ㉘
50mVp-p
13 µsec
(4-25)
IC902
(2/2)
SERVO
DRUM SERVO
DRUM PWM 69
DRUM FG 116
DRUM PG 117
CAPSTAN SERVO
CAP PWM 68
CAP FG 115
VTR/CAMERA CONTROL
X901 20MHz
1 X0
2 X1
CFG HMS 109
D 2.8V
120 VDD
101 AVRH
100 A VDD
64 VDD
25 VDD
DRUM START 50
DRUM ON 13
CAP ON 62
CAP FWD 61
LPF
(4-28)
IC401
(4/6)
LPF
PROTECT
0.25V
CN981
DRUM ERROR
CAP ERROR
IC401 ㉕
50mVp-p
13 µsec
DD-134 BOARD
CN931
IC301
(4-85)
DRUM/CAPSTAN PWM DRIVE
PWM
SWITCHING DRIVE
VTR D/D ON
(CN931 ⑭)
OSC
OUTPUT VCC 56
MT UNREG
Q312 SWITCHING
Q311 SWITCHING
L305
L304
CN931
CN981
DRUM VS
IC301 ㊿8
0.75Vp-p
2.4 µsec
VTR UNREG
D 2.8V
IC401 ㊿7,㊿9,㉝1
1.1Vp-p
6.8 msec
(4-28)
IC401
(5/6)
DRUM MOTOR DRIVE
Vcc1
Vcc2
COM
VS
CONTROL LOGIC
OUTPUT DRIVE BUFFER
OUTPUT DRIVE
U IN 62
V IN 60
W IN 58
U 61
V 59
W 57
DRUM ON
STBY
SELSLP2
RF
R408-410 DRUM DRIVE CURRENT SENS
DRUM START
(4-28)
IC401
(6/6)
DRUM FG/PG WAVE SHAPER
WAVE SHAPER
LPF
V REF
WAVE SHAPER
DRUM FG
DRUM FG
CN976
B201-MECHA
(SEE PAGE 4-27)
COM
M901 DRUM MOTOR
U
V
W
FG
FG-PG-COM
PG
FG
PG
IC201
(4-12)
CAMERA/VIDEO(2) BLOCK
MECHA VD 118
MECHA FLD 111
XCS KINUTA 19
VC SI 80
VC SO 79
XVC SCK 78
SWP 47
ATF SAMPLE 44
REC Y RF
REC C RF
D/A
ATF
REC ATF
PB ATF
A/D
REC RF
PB C RF
(4-17)
IC101
REC/PB AMP
VIDEO HEAD
CH SP1
CH SP2
16
IC301 ㉞4
0.75Vp-p
2.4 µsec
IC401 ⑯
2.8Vp-p
6.7 msec
IC401 ㉒
25 Hz
2.8Vp-p
CN978
CAP VS
VTR UNREG
VCC 2
CAP ON
STANDBY
CAP FWD
FRC
D 2.8V
VCC1
CN982
FOR CHECK
RF SWP
CAP FG
FG OUT
CAMERA/VIDEO(2)
(SEE PAGE 3-8)
CFG DUTY
(IC291 ㉑)
OFF SET ADJ
IC001
(1/2)
CAPSTAN MOTOR DRIVE
VTR UNREG
Vcc
VS
H1(+)
H1(-)
U IN 1
U IN 2
H2(+)
H2(-)
V IN 1
V IN 2
H3(+)
H3(-)
W IN 1
W IN 2
120° LOGIC
U
V
W
STBY
POWER OFF
HE POWER
VH+
VH-
FRC
M902 CAPSTAN MOTOR
CAP U
CAP V
CAP W
C HALL GND
H1(+)
H1(-)
H2(+)
H2(-)
H3(+)
H3(-)
C HALL VCC
CFG VCC
IC001
(2/2)
CAPSTAN FG WAVE SHAPER
CFG(+)
CFG(-)
CAPSTAN FG

3-7. MODE CONTROL BLOCK DIAGRAM (1/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.

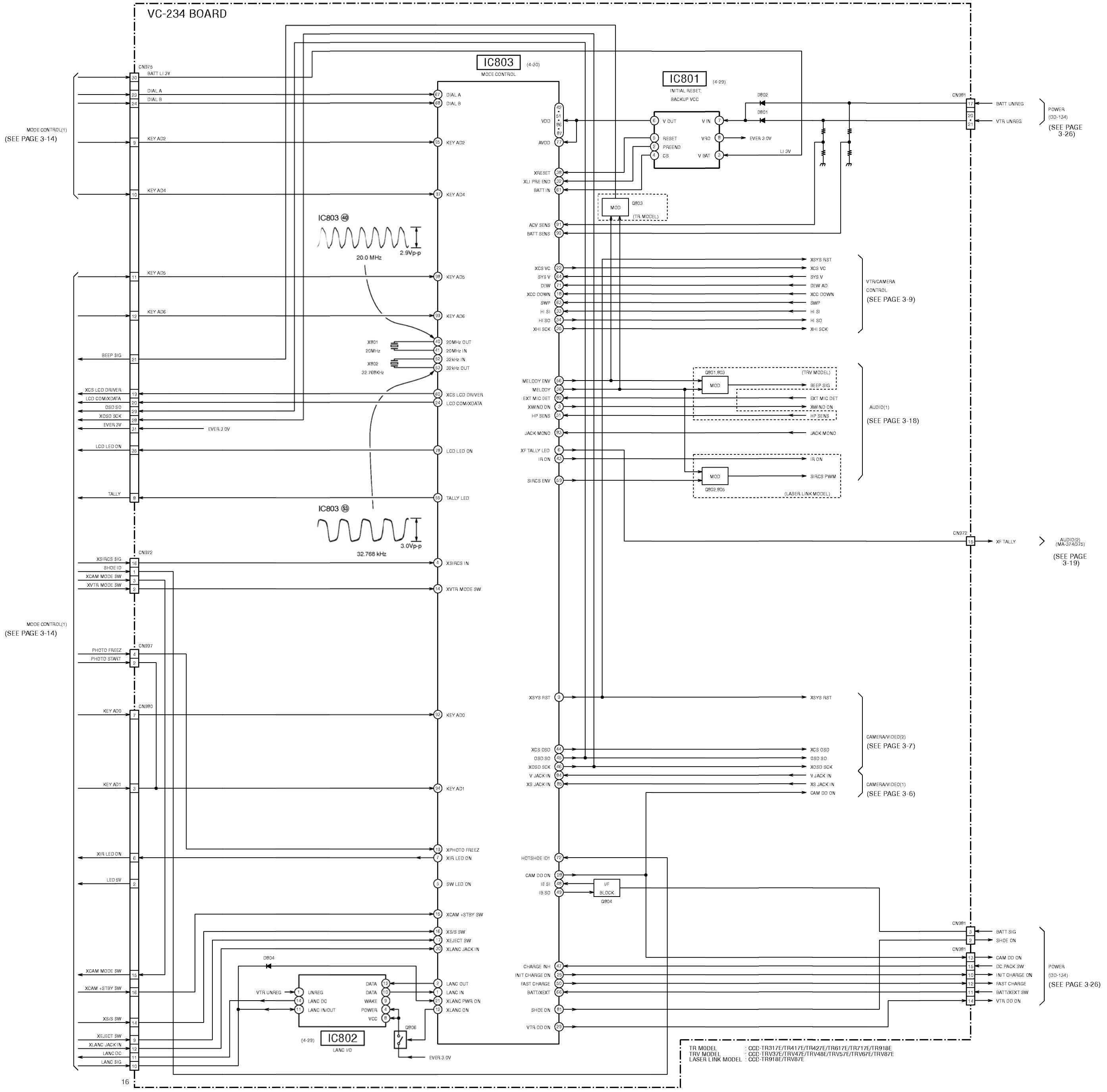

FP-62
(FLEXIBLE)
S1
SUPER NIGHT SHOT
(SUPER NIGHT SHOT MODEL)
CF-66 BOARD
(TR MODEL)
CF-67 BOARD
(TRV MODEL)
CN008
S NIGHT SW
NOTE:TR MODEL/TRV MODEL
BH001
LITHIUM
BATTERY
S008/009
CONTROL
DIAL
BATT LI 3V
DIAL A
DIAL B
CONTROL SWITCH
BLOCK(MR-8500)
(SEE PAGE 4-47,49)
S001
FOCUS
AUTO
MANUAL
INFINITY
RV001
FOCUS
DIAL
(TR MODEL)
(TRV MODEL)
CN002
AUTO
INFINITY
FOCUS A
FOCUS B
D_2.8V
S011/012
TIME
EXECUTE
S006
MENU
S016/004
PICTURE
EFECT
S001
DIGITAL
EFECT
PHOTO MODE MODEL
KEY AD2
MODE CONTROL(2)
(SEE PAGE 3-15)
S012/013
FADER
S009/010
BACK LIGHT
S007
EXPOSURE
KEY AD4
FOCUS A AD
FOCUS B AD
ZOOM VR
VTR/CAMERA CONTROL
(SEE PAGE 3-10)
(TRV MODEL)
S910
PANEL OPEN/CLOSE
CN009
OPEN/CLOSE SW
S014
DISPLAY
S010/011
TITLE
S008
END
SEARCH
S005
COUNTER
RESET
S002
DATE
KEY AD5
KEY AD6
FP-152
(FLEXIBLE)
S001
PANEL
REVERSE
PD-117 BOARD
CN5703
CN5702
CN004
AD6
S5704
VOLUME -
S5703
VOLUME +
S5702
LCD BRIGHT -
S5701
LCD BRIGHT +
PROGRAM AE
S003
(TRV MODEL OR PHOTO MODE MODEL)
S014
(TR MODEL (EXCEPT PHOTO MODE MODEL))
BZ001(AEP/UK MODEL)
BZ002(EXCEPT AEP/UK MODEL)
BUZZER
(TR MODEL)
BEEP SIG
IC5701
(4-78)
CN5705
LCD BLOCK ASSY
LCD
INDICATOR
ND902
BACK
LIGHT
LCD DRIVE
COM1
COM4
SEG1
SEG18
XCS
C/XD
SD
SCK
VDD
CN5704
CN005
XCS LCD DRIVER
LCD COM/XDATA
OSD SD
XOSD SCK
EVER 3V
Q003
VTR UNREG
Q002
BACK LIGHT
DRIVE
(LCD INDICATOR BACK LIGHT MODEL)
LCD LED ON
TALLY
CN001
(TR MODEL)
IC001
(4-47)
CN010
MA-374 BOARD
(TR MODEL)
MA-375 BOARD
(TRV MODEL)
(REMOTE COMMANDER MODEL)
REMOTE
COMMANDER
RECEIVER
IC301
(4-70)
D305
CN303
XSIRCS SIG
SHOE ID
XCAM MODE SW
XVTR MODE SW
S301
VIDEO LIGHT
ON
AUTO
OFF
(VIDEO LIGHT MODEL)
S303
CAMERA
POWER
S302
VTR
OR
PLAYER
B/W EVF
(VF-129)
(SEE PAGE 3-23)
XTALLY LED
CN007
Q001
LED DRIVE
PHOTO FREEZ
PHOTO START
MODE CONTROL(2)
(SEE PAGE 3-15)
CONTROL SWITCH BLOCK(FK-8500)
(SEE PAGE 4-54)
(VTR REC MODEL)
D2.8V
S010
EDIT SEARCH
(-)
S009
EDIT SEARCH
(+)
S005,007
REC
S003
FF
S001
STOP
S008
LASER
LINK
S006
PLAY
S004
REW
S002
PAUSE
RV001
ZOOM
D008
LASER LINK
(LASER LINK MODEL)
EJ-29 BOARD
(TR MODEL)
EJ-30 BOARD
(TRV MODEL)
CN252
KEY AD0
KEY AD1
ZOOM VR AD
XIR LED ON
LED 5V
Q933,934
D 2.8V
(PHOTO MODE MODEL)
FP-49(FLEXIBLE)
S1
PHOTO
PHOTO FREEZE
(1ST CLICK)
PHOTO START
(2ND CLICK)
CONTROL SWITCH BLOCK
(SS-9700)
(SEE PAGE 4-54)
S001
LOCK
STANDBY
S002
START/STOP
CN253
XCAM MODE SW
XCAM +STBY SW
XS/S SW
J251
LANC
XEJECT SW
XLANC JACK N
LANC DC
LANC S G
S251
EJECT
CN251

TR MODEL	: CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL	: CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
SUPER NIGHT SHOT MODEL	: CCD-TR918E/TRV87E
LCD INDICATOR BACK LIGHT MODEL	: CCD-TR918E/TRV87E
REMOTE COMMANDER MODEL	: CCD-TR427E/TR617E/TR717E/TR918E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
VIDEO LIGHT MODEL	: CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E
PHOTO MODE MODEL	: CCD-TR918E/TRV87E
VTR REC MODEL	: CCD-TRV87E : E,HK,AUS,CN,JE model
LASER LINK MODEL	: CCD-TR918E/TRV87E

Abbreviation
HK : Hong Kong MODEL
AUS : Australian MODEL
CN : Chinese MODEL
JE : Tourist MODEL

3-8. MODE CONTROL BLOCK DIAGRAM (2/2)

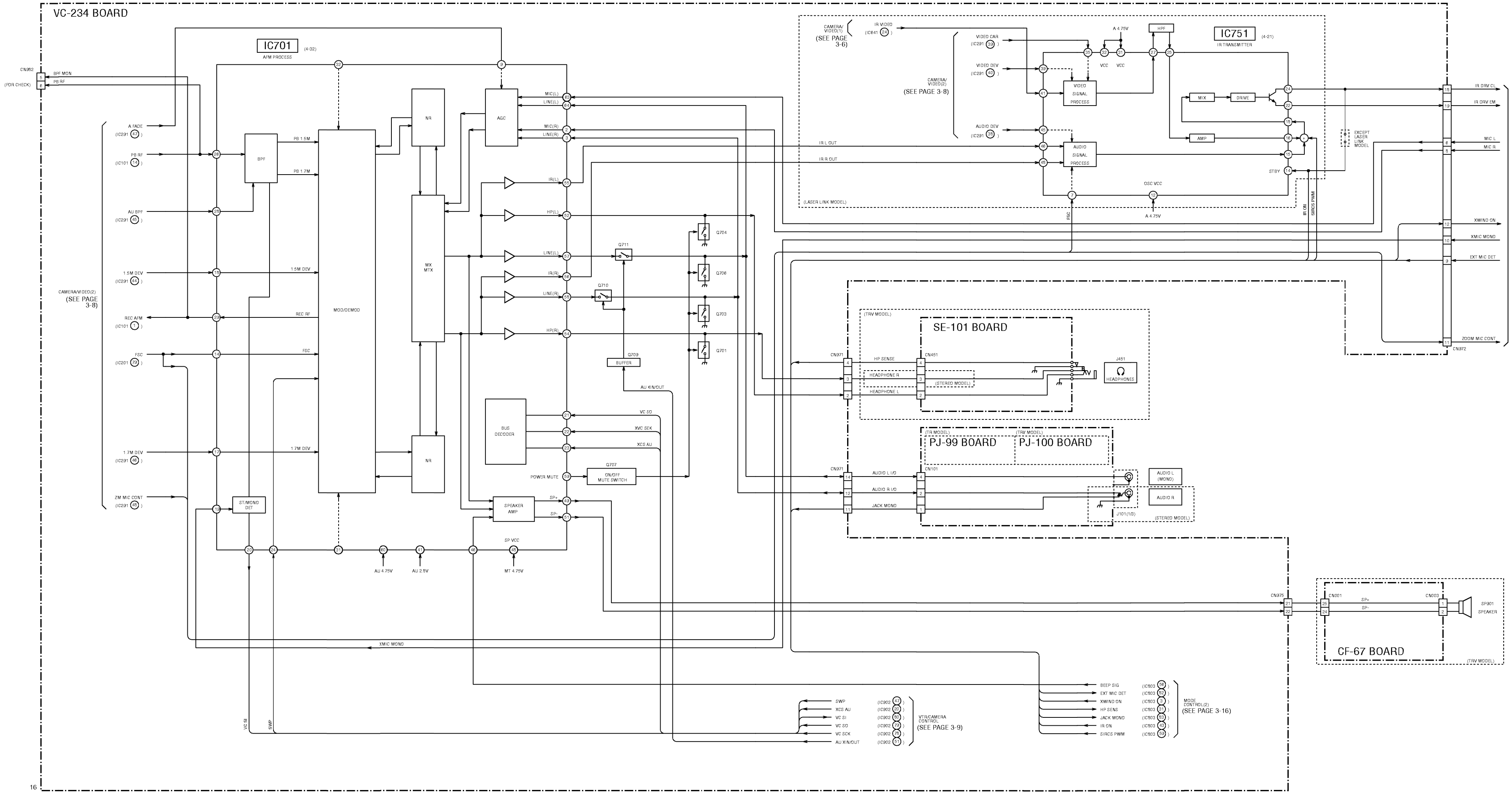
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
MODE CONTROL(1)
(SEE PAGE 3-14)
CN975
BATT LI 3V
DIAL A
DIAL B
KEY AD2
KEY AD4
KEY AD5
KEY AD6
BEEP SIG
XCS LCD DRIVER
LCD COM/XDATA
OSD SO
XOSD SCK
EVER 3V
EVER 3.0V
LCD LED ON
TALLY
IC803
(4-30)
MODE CONTROL
IC803 ㊵
20.0 MHz
2.9Vp-p
X801
20MHz
X802
32.768KHz
20MHz OUT
20MHz IN
32kHz IN
32kHz OUT
TALLY LED
IC803 ㊿
3.0Vp-p
32.768 kHz
VDD
AVDD
XRESET
XLI PRE END
BATT IN
ACV SENS
BATT SENS
XCS VC
SYS V
DEW
XCC DOWN
SWP
HI SI
HI SO
XHI SCK
MELODY ENV
MELODY
EXT MIC DET
XWIND ON
HP SENS
JACK MONO
XF TALLY LED
IR ON
SIRCS ENV
IC801
(4-29)
INITIAL RESET,
BACKUP VCC
V OUT
V IN
RESET
PREEND
CS
VRO
V BAT
EVER 3.0V
LI 3V
D802
D801
MOD
Q803
(TR MODEL)
CN981
BATT UNREG
VTR UNREG
POWER
(DD-134)
(SEE PAGE 3-26)
XSYS RST
DEW AD
VTR/CAMERA
CONTROL
(SEE PAGE 3-9)
Q801,803
(TRV MODEL)
BEEP SIG
AUDIO(1)
(SEE PAGE 3-18)
SIRCS PWM
Q802,805
(LASER LINK MODEL)
CN972
XF TALLY
AUDIO(2)
(MA-374/375)
(SEE PAGE 3-19)
XSIRCS SIG
SHOE ID
XCAM MODE SW
XVTR MODE SW
XSIRCS IN
CN997
PHOTO FREEZ
PHOTO START
CN980
KEY AD0
KEY AD1
XPHOTO FREEZ
XIR LED ON
LED 5V
SW LED ON
XCAM +STBY SW
XS/S SW
XEJECT SW
XLANC JACK IN
LANC DC
LANC SIG
D804
VTR UNREG
UNREG
LANC DC
LANC IN/OUT
DATA
WAKE
POWER
VCC
Q806
IC802
(4-29)
LANC I/O
LANC OUT
LANC IN
XLANC PWR ON
XLANC ON
16
XCS OSD
V JACK IN
XS JACK IN
CAM DD ON
CAMERA/VIDEO(2)
(SEE PAGE 3-7)
CAMERA/VIDEO(1)
(SEE PAGE 3-6)
HOTSHOE ID1
IE SI
IB SO
I/F
BLOCK
Q804
CHARGE INH
INIT CHARGE ON
FAST CHARGE
BATT/XEXT
SHOE ON
VTR DD ON
BATT SIG
DC PACK SW
BATT/XEXT SW

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
LASER LINK MODEL : CCD-TR918E/TRV87E

3-9. AUDIO BLOCK DIAGRAM (1/2)

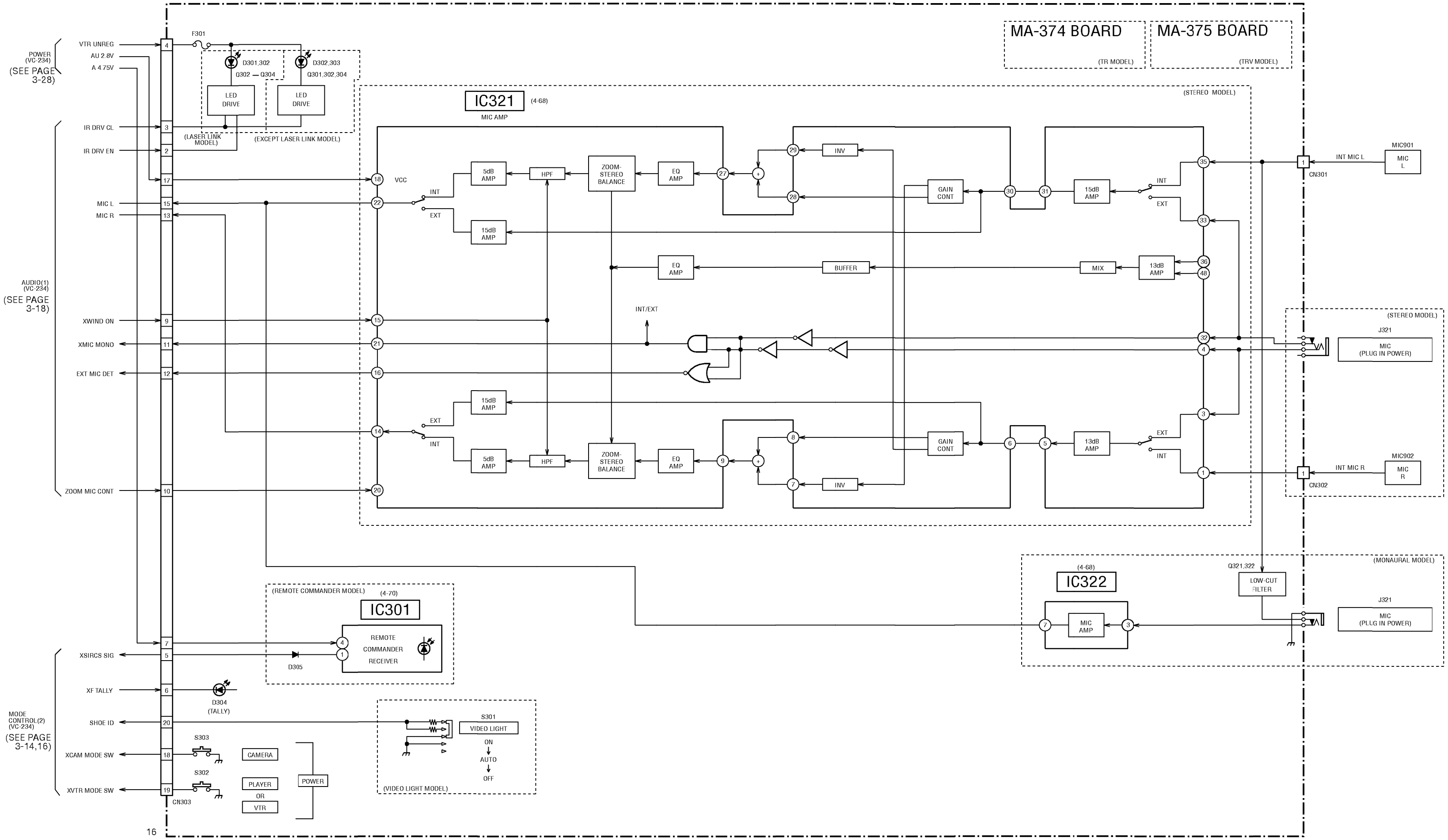
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
IC701
(4-32)
AFM PROCESS
CN982
(FOR CHECK)
BPF MON
PB RF
A FADE (IC291 47)
PB RF (IC101 14)
AU BPF (IC291 45)
1.5M DEV (IC291 44)
CAMERA/VIDEO(2) (SEE PAGE 3-8)
REC AFM (IC101 1)
FSC (IC201 79)
1.7M DEV (IC291 46)
ZM MIC CONT (IC291 48)
BPF
PB 1.5M
PB 1.7M
1.5M DEV
REC RF
FSC
1.7M DEV
MOD/DEMOD
NR
MX MTX
NR
AGC
ST/MONO DET
MIC(L)
LINE(L)
MIC(R)
LINE(R)
IR(L)
HP(L)
LINE(L)
IR(R)
LINE(R)
HP(R)
Q711
Q710
Q709
BUFFER
AU XIN/OUT
Q704
Q706
Q703
Q701
BUS DECODER
VC SO
XVC SCK
XCS AU
Q707
ON/OFF MUTE SWITCH
POWER MUTE
SPEAKER AMP
SP+
SP-
SP VCC
AU 4.75V
AU 2.8V
MT 4.75V
XMIC MONO
VC SI
SWP
16
CAMERA/VIDEO(1) (SEE PAGE 3-6)
IR VIDEO (IC641 24)
VIDEO CAR (IC291 39)
VIDEO DEV (IC291 40)
CAMERA/VIDEO(2) (SEE PAGE 3-8)
AUDIO DEV (IC291 38)
IR L OUT
IR R OUT
A 4.75V
HPF
VCC
VCC
IC751
(4-21)
IR TRANSMITTER
VIDEO SIGNAL PROCESS
AUDIO SIGNAL PROCESS
MIX
DRIVE
AMP
STBY
OSC VCC
A 4.75V
FSC
IR ON
SIRCS PWM
(LASER LINK MODEL)
EXCEPT LASER LINK MODEL
IR DRV CL
IR DRV EM
MIC L
MIC R
AUDIO(2) (MA-374/375) (SEE PAGE 3-19)
XWIND ON
XMIC MONO
EXT MIC DET
ZOOM MIC CONT
CN972
(TRV MODEL)
SE-101 BOARD
CN971
CN451
HP SENSE
HEADPHONE R
HEADPHONE L
(STEREO MODEL)
J451
HEADPHONES
(TR MODEL)
(TRV MODEL)
PJ-99 BOARD
PJ-100 BOARD
CN971
CN101
AUDIO L I/O
AUDIO R I/O
JACK MONO
AUDIO L (MONO)
AUDIO R
J101(1/3)
(STEREO MODEL)
CN975
CN001
CN003
SP+
SP-
SP901 SPEAKER
CF-67 BOARD
(TRV MODEL)
SWP (IC902 47)
XCS AU (IC902 20)
VC SI (IC902 80)
VC SO (IC902 79)
VC SCK (IC902 78)
AU XIN/OUT (IC902 51)
VTR/CAMERA CONTROL (SEE PAGE 3-9)
BEEP SIG (IC803 56)
EXT MIC DET (IC803 82)
XWIND ON (IC803 3)
HP SENS (IC803 31)
JACK MONO (IC803 83)
IR ON (IC803 43)
SIRCS PWM (IC803 59)
MODE CONTROL(2) (SEE PAGE 3-16)

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
STEREO MODEL : CCD-TR918E/TRV87E
MONAURAL MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E
LASER LINK MODEL : CCD-TR918E/TRV87E

3-10. AUDIO BLOCK DIAGRAM (2/2)

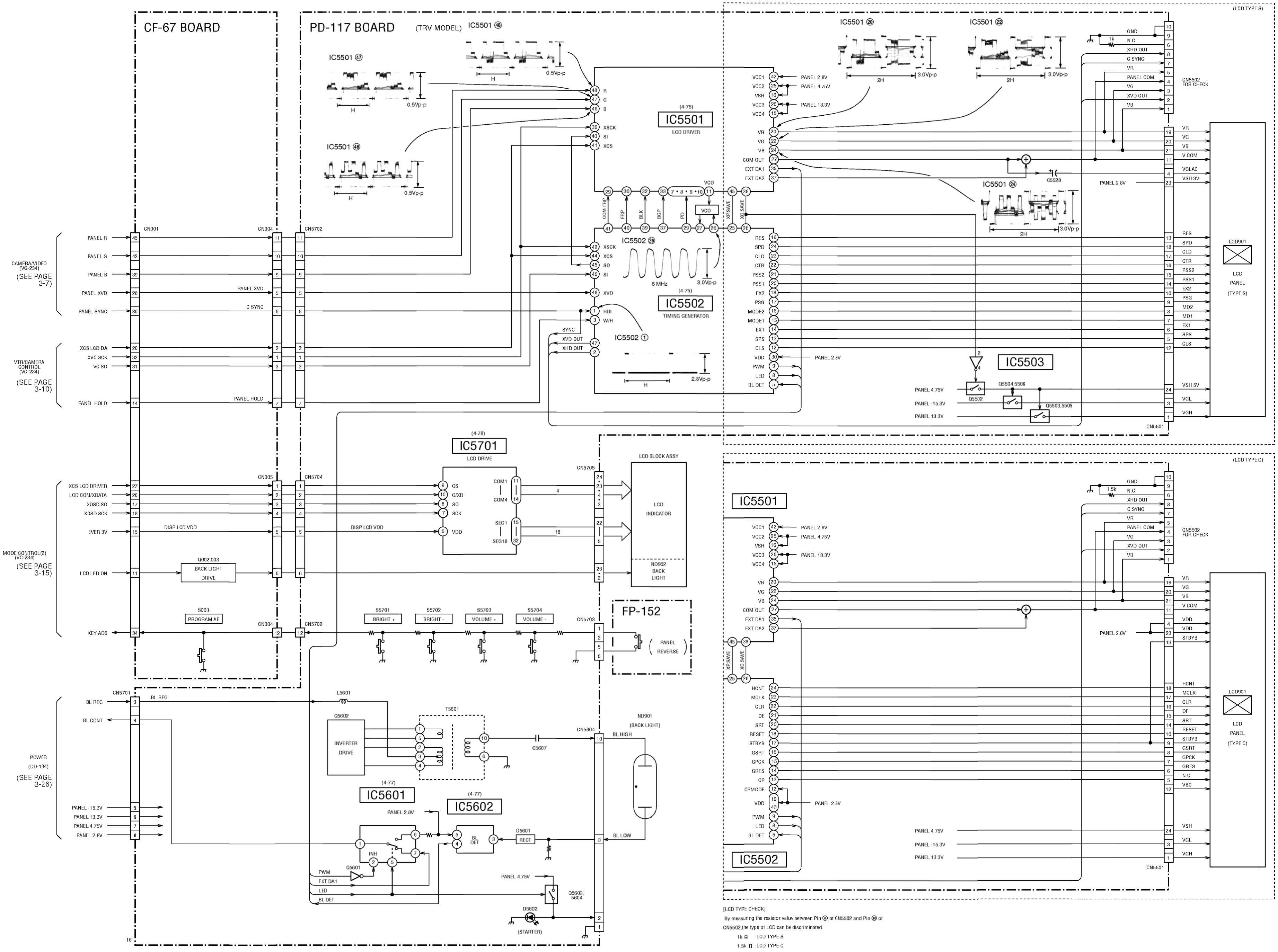
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


POWER
(VC-234)
(SEE PAGE 3-28)
VTR UNREG
AU 2.8V
A 4.75V
F301
D301,302
Q302 — Q304
D302,303
Q301,302,304
LED DRIVE
LED DRIVE
(LASER LINK MODEL)
(EXCEPT LASER LINK MODEL)
IR DRV CL
IR DRV EN
MIC L
MIC R
AUDIO(1)
(VC-234)
(SEE PAGE 3-18)
XWIND ON
XMIC MONO
EXT MIC DET
ZOOM MIC CONT
MA-374 BOARD
(TR MODEL)
MA-375 BOARD
(TRV MODEL)
IC321
(4-68)
MIC AMP
(STEREO MODEL)
VCC
INT
EXT
5dB AMP
15dB AMP
HPF
ZOOM-STEREO BALANCE
EQ AMP
INV
GAIN CONT
15dB AMP
13dB AMP
MIX
BUFFER
INT/EXT
MIC901
MIC L
INT MIC L
CN301
(STEREO MODEL)
J321
MIC
(PLUG IN POWER)
MIC902
MIC R
INT MIC R
CN302
(MONAURAL MODEL)
(4-68)
IC322
MIC AMP
Q321,322
LOW-CUT FILTER
J321
MIC
(PLUG IN POWER)
(REMOTE COMMANDER MODEL)
(4-70)
IC301
REMOTE COMMANDER RECEIVER
D305
XSIRCS SIG
XF TALLY
D304
(TALLY)
MODE
CONTROL(2)
(VC-234)
(SEE PAGE 3-14,16)
SHOE ID
XCAM MODE SW
XVTR MODE SW
S303
S302
CAMERA
PLAYER
OR
VTR
POWER
CN303
S301
VIDEO LIGHT
ON
AUTO
OFF
(VIDEO LIGHT MODEL)
16

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
STEREO MODEL : CCD-TR918E/TRV87E
MONAURAL MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E
LASER LINK MODEL : CCD-TR918E/TRV87E
REMOTE COMMANDER MODEL : CCD-TR427E/TR617E/TR717E/TR918E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
VIDEO LIGHT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E

3-11. LCD BLOCK DIAGRAM (TRV MODEL)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


CF-67 BOARD
PD-117 BOARD (TRV MODEL)
IC5501 ㊽
IC5501 ㊼
IC5501 ㊻
0.5Vp-p
H
IC5501 ⑳
IC5501 ㉒
IC5501 ㉔
2H
3.0Vp-p
(LCD TYPE S)
(LCD TYPE C)
(4-75)
IC5501
LCD DRIVER
IC5502
TIMING GENERATOR
IC5502 ㊻
6 MHz
IC5502 ①
2.8Vp-p
IC5503
R
G
B
XSCK
SI
XCS
VCC1
VCC2
VSH
VCC3
VCC4
VR
VG
VB
COM OUT
EXT DA1
EXT DA2
VCO
COM FRP
FRP
BLK
BGP
PD
XP SAVE
XC SAVE
SO
XVD
HDI
W/H
SYNC
XVD OUT
XHD OUT
RES
SPD
CLD
CTR
PSS2
PSS1
EX2
PSG
MODE2
MODE1
EX1
SPS
CLS
VDD
PWM
LED
BL DET
PANEL 2.8V
PANEL 4.75V
PANEL 13.3V
PANEL -15.3V
Q5502
Q5504,5506
Q5503,5505
C5528
GND
N C
XHD OUT
C SYNC
PANEL COM
V COM
VGLAC
VSH 3V
VSH 5V
VGL
VGH
MO2
MO1
CN5502 FOR CHECK
CN5501
LCD901
LCD PANEL (TYPE S)
LCD PANEL (TYPE C)
1k
1.5k
STBYB
HCNT
MCLK
CLR
OE
SRT
RESET
GSRT
GPCK
GRES
CP
CPMODE
VBC
VSH
CN001
CN004
CN5702
CN005
CN5704
CN5701
CN5703
CN5704
CN5705
PANEL R
PANEL G
PANEL B
PANEL XVD
PANEL SYNC
C SYNC
CAMERA/VIDEO (VC-234) (SEE PAGE 3-7)
XCS LCD DA
XVC SCK
VC SO
VTR/CAMERA CONTROL (VC-234) (SEE PAGE 3-10)
PANEL HOLD
XCS LCD DRIVER
LCD COM/XDATA
XOSD SO
XOSD SCK
EVER 3V
DISP LCD VDD
MODE CONTROL(2) (VC-234) (SEE PAGE 3-15)
LCD LED ON
Q002,003 BACK LIGHT DRIVE
KEY AD6
S003 PROGRAM AE
S5701 BRIGHT +
S5702 BRIGHT -
S5703 VOLUME +
S5704 VOLUME -
(4-78)
IC5701
LCD DRIVE
CS
C/XD
SO
SCK
VDD
COM1
COM4
SEG1
SEG18
4
18
LCD BLOCK ASSY
LCD INDICATOR
ND902 BACK LIGHT
FP-152
PANEL REVERSE
BL REG
BL CONT
POWER (DD-134) (SEE PAGE 3-26)
PANEL -15.3V
PANEL 13.3V
PANEL 4.75V
PANEL 2.8V
L5601
Q5602
INVERTER DRIVE
T5601
C5607
ND901 (BACK LIGHT)
BL HIGH
BL LOW
(4-77)
IC5601
IC5602
INH
BL DET
D5601 RECT
Q5601
PWM
EXT DA1
LED
BL DET
Q5603, 5604
D5602
(STARTER)
16

[LCD TYPE CHECK]

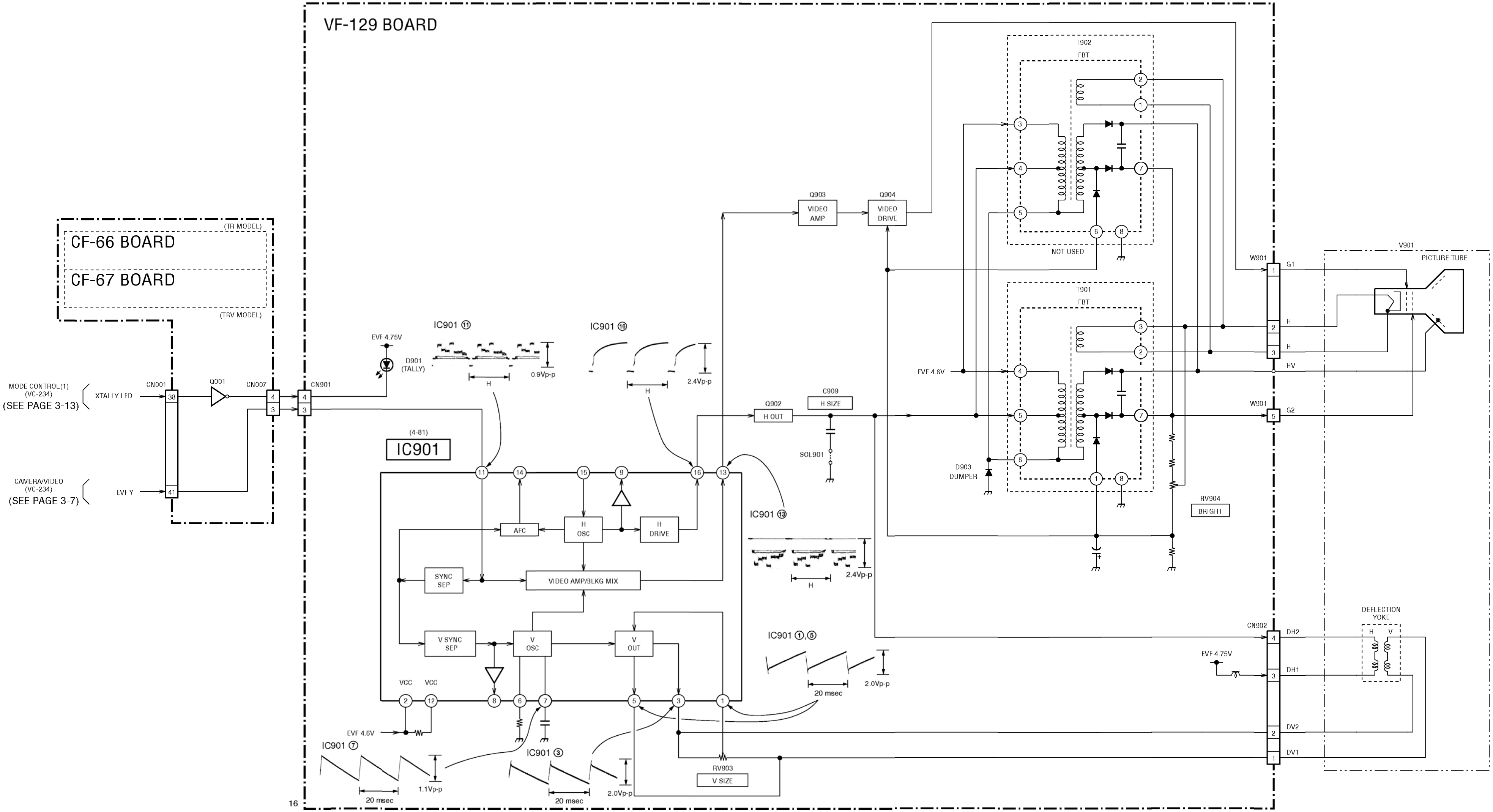
By measuring the resistor value between Pin ⑥ of CN5502 and Pin ⑩ of CN5502,the type of LCD can be discriminated.

1k Ω :LCD TYPE S
1.5k Ω :LCD TYPE C

TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

3-12. EVF BLOCK DIAGRAM

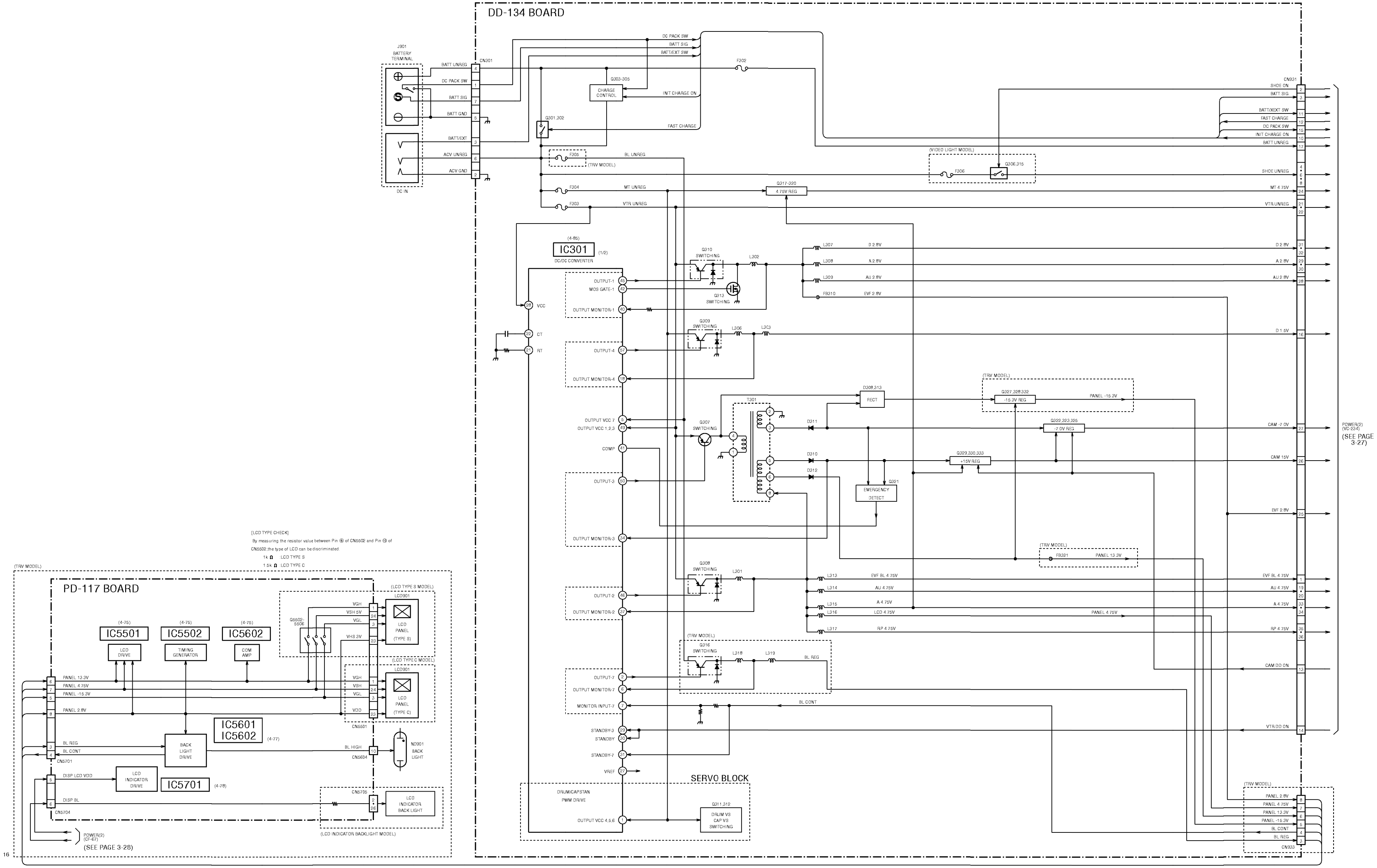
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VF-129 BOARD
(TR MODEL)
CF-66 BOARD
CF-67 BOARD
(TRV MODEL)
MODE CONTROL(1)
(VC-234)
(SEE PAGE 3-13)
XTALLY LED
CAMERA/VIDEO
(VC-234)
(SEE PAGE 3-7)
EVF Y
CN001
Q001
CN007
CN901
EVF 4.75V
D901
(TALLY)
IC901 ⑪
0.9Vp-p
H
IC901 ⑯
2.4Vp-p
H
(4-81)
IC901
AFC
H OSC
H DRIVE
SYNC SEP
VIDEO AMP/BLKG MIX
V SYNC SEP
V OSC
V OUT
VCC
VCC
EVF 4.6V
IC901 ⑦
1.1Vp-p
20 msec
IC901 ③
2.0Vp-p
20 msec
IC901 ⑬
2.4Vp-p
H
IC901 ①,⑤
2.0Vp-p
20 msec
RV903
V SIZE
Q902
H OUT
C909
H SIZE
SOL901
Q903
VIDEO AMP
Q904
VIDEO DRIVE
T902
FBT
NOT USED
T901
FBT
EVF 4.6V
D903
DUMPER
RV904
BRIGHT
W901
G1
H
H
HV
W901
G2
V901
PICTURE TUBE
CN902
DH2
DH1
DV2
DV1
EVF 4.75V
DEFLECTION
YOKE
H
V
16

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

3-13. POWER BLOCK DIAGRAM (1/2)

( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


DD-134 BOARD
J901
BATTERY
TERMINAL
DC IN
CN301
BATT UNREG
DC PACK SW
BATT SIG
BATT GND
BATT/EXT
ACV UNREG
ACV GND
DC PACK SW
BATT SIG
BATT/EXT SW
Q303-305
CHARGE
CONTROL
INIT CHARGE ON
Q301,302
FAST CHARGE
F302
F305
(TRV MODEL)
BL UNREG
F304
MT UNREG
F303
VTR UNREG
Q317-320
4.75V REG
(VIDEO LIGHT MODEL)
F306
Q306,315
CN931
SHOE ON
BATT SIG
BATT/XEXT SW
FAST CHARGE
DC PACK SW
INIT CHARGE ON
BATT UNREG
SHOE UNREG
MT 4.75V
VTR UNREG
(4-85)
IC301
(1/2)
DC/DC CONVERTER
OUTPUT-1
MOS GATE-1
VCC
OUTPUT MONITOR-1
CT
RT
OUTPUT-4
OUTPUT MONITOR-4
OUTPUT VCC 7
OUTPUT VCC 1,2,3
COMP
OUTPUT-3
OUTPUT MONITOR-3
OUTPUT-2
OUTPUT MONITOR-2
OUTPUT-7
OUTPUT MONITOR-7
MONITOR INPUT-7
STANDBY-3
STANDBY
STANDBY-7
VREF
Q310
SWITCHING
L302
Q313
SWITCHING
L307
D 2.8V
L308
A 2.8V
L309
AU 2.8V
FB310
EVF 2.8V
Q309
SWITCHING
L306
L303
D 1.5V
D308,313
RECT
T301
Q307
SWITCHING
D311
D310
D312
Q321
EMERGENCY
DETECT
(TRV MODEL)
Q327,328,332
-15.3V REG
PANEL -15.3V
Q322,323,325
-7.0V REG
Q329,330,333
+15V REG
CAM -7.0V
CAM 15V
EVF 2.8V
POWER(2)
(VC-234)
(SEE PAGE 3-27)
(TRV MODEL)
FB321
PANEL 13.3V
Q308
SWITCHING
L301
L313
EVF BL 4.75V
L314
AU 4.75V
L315
A 4.75V
L316
LCD 4.75V
PANEL 4.75V
L317
RP 4.75V
(TRV MODEL)
Q316
SWITCHING
L318
L319
BL REG
BL CONT
CAM DD ON
VTR DD ON
SERVO BLOCK
DRUM/CAPSTAN
PWM DRIVE
OUTPUT VCC 4,5,6
Q311,312
DRUM VS
CAP VS
SWITCHING
(TRV MODEL)
PANEL 2.8V
PANEL 4.75V
PANEL 13.3V
PANEL -15.3V
BL CONT
BL REG
CN933
(TRV MODEL)
PD-117 BOARD
(4-75)
IC5501
LCD
DRIVE
(4-75)
IC5502
TIMING
GENERATOR
(4-75)
IC5602
COM
AMP
(LCD TYPE S MODEL)
LCD901
Q5502-
5506
VGH
VSH 5V
VGL
VHS 3V
LCD
PANEL
(TYPE S)
(LCD TYPE C MODEL)
LCD901
VGH
VSH
VGL
VDD
LCD
PANEL
(TYPE C)
CN5501
PANEL 13.3V
PANEL 4.75V
PANEL -15.3V
PANEL 2.8V
IC5601
IC5602
(4-77)
BL REG
BL CONT
CN5701
BACK
LIGHT
DRIVE
BL HIGH
CN5604
ND901
BACK
LIGHT
DISP LCD VDD
LCD
INDICATOR
DRIVE
IC5701
(4-78)
DISP BL
CN5704
CN5705
LCD
INDICATOR
BACK LIGHT
(LCD INDICATOR BACKLIGHT MODEL)
POWER(2)
(CF-67)
(SEE PAGE 3-28)
16

[LCD TYPE CHECK]

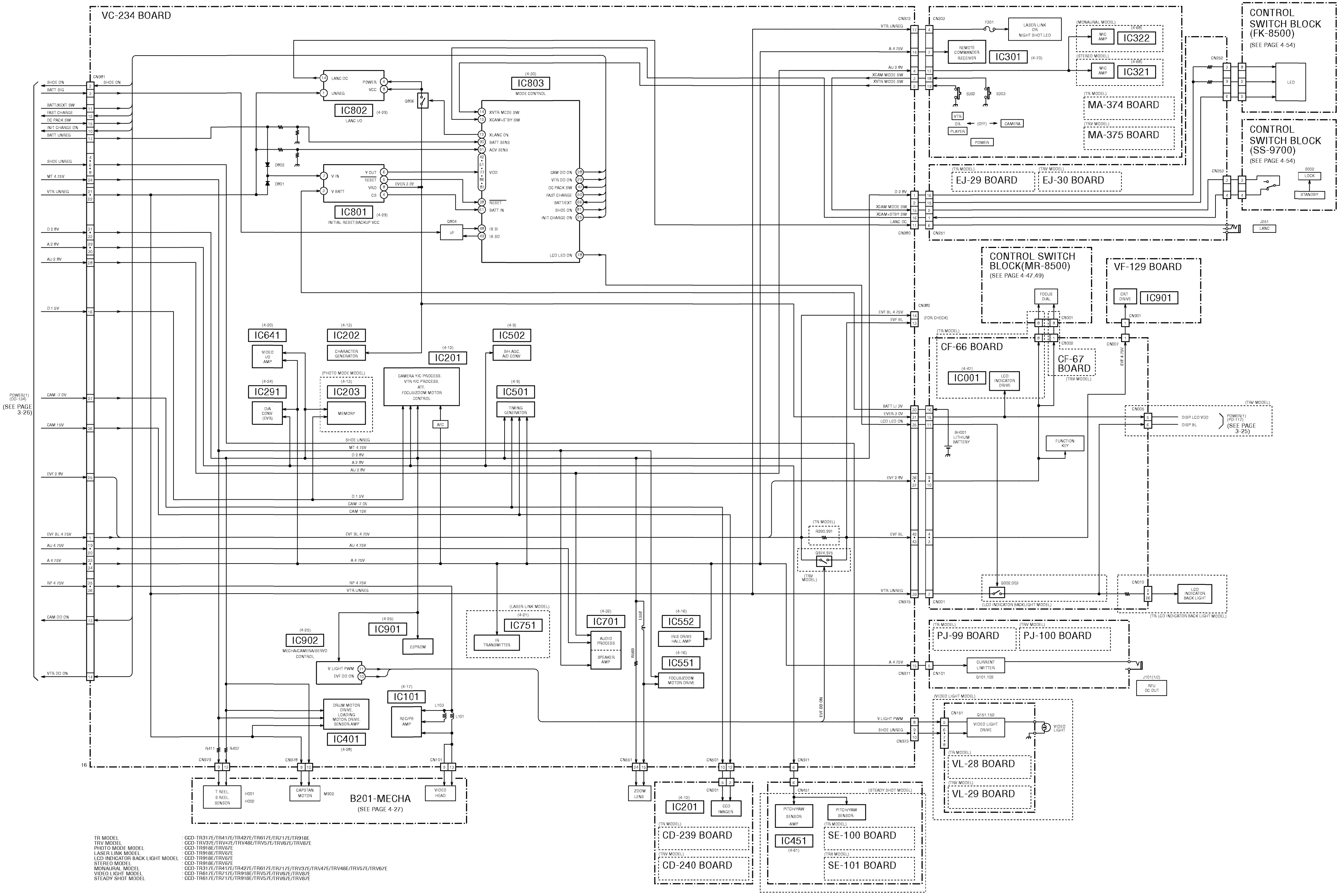
By measuring the resistor value between Pin ⑥ of CN5502 and Pin ⑩ of CN5502, the type of LCD can be discriminated.

1k Ω :LCD TYPE S
1.5k Ω :LCD TYPE C

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
LCD TYPE S MODEL : Refer to "LCD TYPE CHECK".
LCD TYPE C MODEL : Refer to "LCD TYPE CHECK".
LCD INDICATOR BACK LIGHT MODEL : CCD-TR918E/TRV87E
VIDEO LIGHT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E

3-14. POWER BLOCK DIAGRAM (2/2)

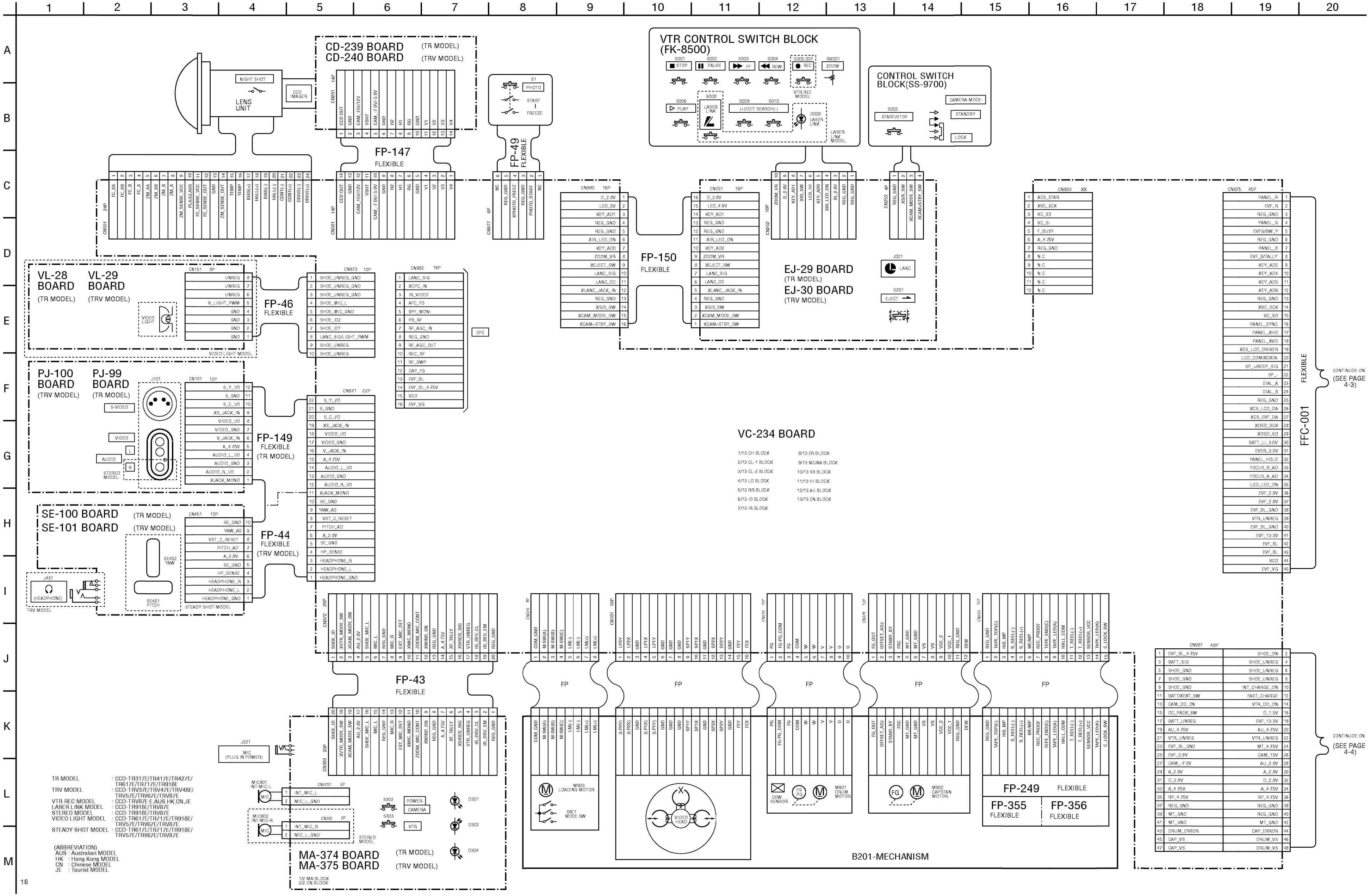
( ) : Page No. shown in ( ) indicates the page to refer on the schematic diagram.


VC-234 BOARD
CN981
SHOE ON
BATT SIG
BATT/XEXT SW
FAST CHARGE
DC PACK SW
INIT CHARGE ON
BATT UNREG
SHOE UNREG
MT 4.75V
VTR UNREG
D 2.8V
A 2.8V
AU 2.8V
D 1.5V
POWER(1)
(DD-134)
(SEE PAGE 3-26)
CAM -7.0V
CAM 15V
EVF 2.8V
EVF BL 4.75V
AU 4.75V
A 4.75V
RP 4.75V
CAM DD ON
VTR DD ON
IC802
(4-29)
LANC I/O
LANC DC
UNREG
POWER
VCC
Q806
IC801
(4-29)
INITIAL RESET,BACKUP VCC
V IN
V BATT
V OUT
RESET
VRO
CS
EVER 3.0V
D802
D801
Q804
I/F
IC803
(4-30)
MODE CONTROL
XVTR MODE SW
XCAM+S˜BY SW
XLANC ON
BATT SENS
ACV SENS
VDD
RESET
BATT IN
IB SI
IB SO
CAM DD ON
VTR DD ON
DC PACK SW
FAST CHARGE
BATT/EXT
SHOE ON
INIT CHARGE ON
LCD LED ON
IC641
(4-20)
VIDEO I/O AMP
IC202
(4-13)
CHARACTER GENERATOR
IC201
(4-12)
CAMERA Y/C PROCESS, VTR Y/C PROCESS, ATF, FOCUS/ZOOM MOTOR CONTROL
AFC
IC502
(4-9)
S/H,AGC, A/D CONV.
IC291
(4-24)
D/A CONV. (EVR)
(PHOTO MODE MODEL)
IC203
(4-13)
MEMORY
IC501
(4-9)
TIMING GENERATOR
IC902
(4-25)
MECHA/CAMERA/SERVO CONTROL
V LIGHT PWM
EVF DD ON
IC901
(4-25)
EEPROM
(LASER LINK MODEL)
IC751
(4-21)
IR TRANSMITTER
IC701
(4-32)
AUDIO PROCESS
SPEAKER AMP
L552
R560
IC552
(4-16)
IRIS DRIVE HALL AMP
IC551
(4-16)
FOCUS/ZOOM MOTOR DRIVE
IC101
(4-17)
REC/PB AMP
L103
L101
DRUM MOTOR DRIVE, LOADING MOTOR DRIVE, SENSOR AMP
IC401
(4-28)
R411
R407
16
CN979
CN978
CN101
CN551
CN501
CN971
B201-MECHA
(SEE PAGE 4-27)
T REEL, S REEL, SENSOR
H001
H002
CAPSTAN MOTOR
M902
VIDEO HEAD
ZOOM LENS
CN201
IC201
(4-12)
CCD IMAGER
(TR MODEL)
CD-239 BOARD
(TRV MODEL)
CD-240 BOARD
CN451
(STEADY SHOT MODEL)
PITCH/YAW SENSOR AMP
PITCH/YAW SENSOR
IC451
(4-61)
SE-100 BOARD
SE-101 BOARD
CN972
CN303
VTR UNREG
A 4.75V
AU 2.8V
XCAM MODE SW
XVTR MODE SW
F301
LASER LINK OR NIGHT SHOT LED
REMOTE COMMANDER RECEIVER
IC301
(4-70)
(MONAURAL MODEL)
MIC AMP
IC322
(4-68)
(STEREO MODEL)
IC321
S302
S303
VTR
OR
PLAYER
(OFF)
CAMERA
POWER
MA-374 BOARD
MA-375 BOARD
CN252
LED
CONTROL SWITCH BLOCK (FK-8500)
(SEE PAGE 4-54)
CONTROL SWITCH BLOCK (SS-9700)
(SEE PAGE 4-54)
CN253
S002
LOCK
STANDBY
EJ-29 BOARD
EJ-30 BOARD
D 2.8V
XCAM+STBY SW
LANC DC
CN980
CN251
J251
LANC
CONTROL SWITCH BLOCK(MR-8500)
(SEE PAGE 4-47,49)
FOCUS DIAL
CN001
VF-129 BOARD
CRT DRIVE
IC901
CN901
CN982
EVF BL 4.75V
EVF BL
(FOR CHECK)
CF-66 BOARD
IC001
(4-47)
LCD INDICATOR DRIVE
CN002
CN007
CF-67 BOARD
EVF 4.75V
BATT LI 3V
EVER 3.0V
LCD LED ON
BH001 LITHIUM BATTERY
FUNCTION KEY
CN005
DISP LCD VDD
DISP BL
POWER(1)
(PD-117)
(SEE PAGE 3-25)
EVF 2.8V
R990,991
Q974,975
CN975
Q002,003
(LCD INDICATOR BACKLIGHT MODEL)
CN010
LCD INDICATOR BACK LIGHT
(TR LCD INDICATOR BACK LIGHT MODEL)
PJ-99 BOARD
PJ-100 BOARD
CURRENT LIMITTER
Q101,102
J101(1/2)
RFU DC OUT
(VIDEO LIGHT MODEL)
V LIGHT PWM
SHOE UNREG
CN973
CN151
Q151,152
VIDEO LIGHT DRIVE
VIDEO LIGHT
VL-28 BOARD
VL-29 BOARD

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
PHOTO MODE MODEL : CCD-TR918E/TRV87E
LASER LINK MODEL : CCD-TR918E/TRV87E
LCD INDICATOR BACK LIGHT MODEL : CCD-TR918E/TRV87E
STEREO MODEL : CCD-TR918E/TRV87E
MONAURAL MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E
VIDEO LIGHT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E
STEADY SHOT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E

SECTION 4
PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

4-1. FRAME SCHEMATIC DIAGRAM (1/2)

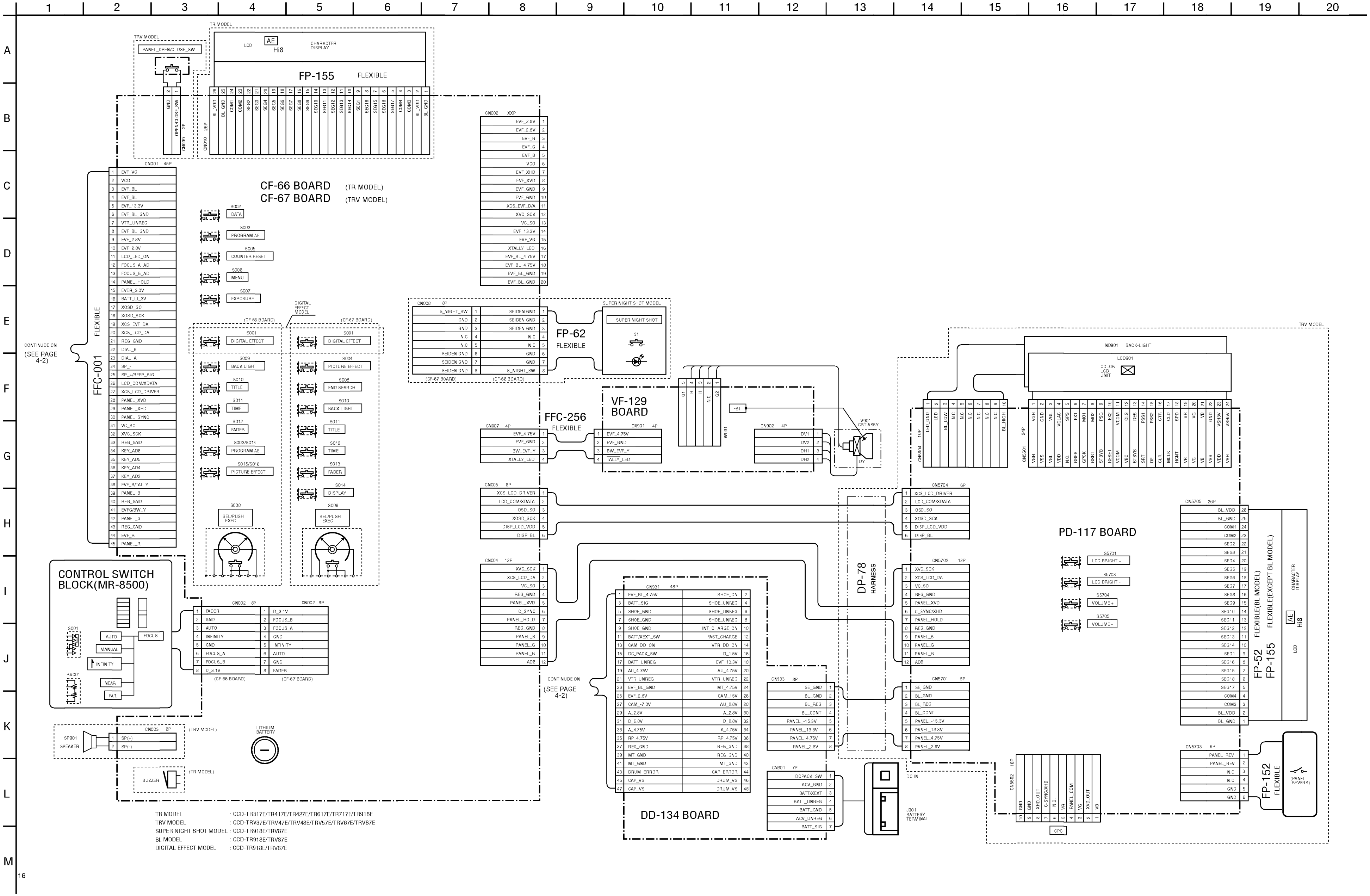

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
A
B
C
D
E
F
G
H
I
J
K
L
M
LENS UNIT
NIGHT SHOT
CCD IMAGER
CD-239 BOARD (TR MODEL)
CD-240 BOARD (TRV MODEL)
CN201 14P
FP-147 FLEXIBLE
S1 PHOTO
START
FREEZE
FP-49 FLEXIBLE
VTR CONTROL SWITCH BLOCK (FK-8500)
S001 STOP
S002 PAUSE
S003 FF
S004 REW
S005 007 REC
RV001 ZOOM
S006 PLAY
S008 LASER LINK
S009 S010 (+)EDIT SEARCH(-)
VTR REC MODEL
D008 LASER LINK
LASER LINK MODEL
CONTROL SWITCH BLOCK(SS-9700)
S002 START/STOP
CAMERA MODE
STANDBY
LOCK
CN551 24P
CN501 14P
CN977 6P
CN980 16P
FP-150 FLEXIBLE
CN251 16P
CN252 10P
CN253 4P
EJ-29 BOARD (TR MODEL)
EJ-30 BOARD (TRV MODEL)
J001 LANC
S251 EJECT
CN983 XX
CN975 45P
VL-28 BOARD (TR MODEL)
VL-29 BOARD (TRV MODEL)
CN151 8P
VIDEO LIGHT
VIDEO LIGHT MODEL
FP-46 FLEXIBLE
CN973 10P
CN982 16P
CPC
PJ-100 BOARD (TRV MODEL)
PJ-99 BOARD (TR MODEL)
J101
CN101 12P
S-VIDEO
VIDEO
AUDIO
L
R
STEREO MODEL
FP-149 FLEXIBLE (TR MODEL)
CN971 22P
VC-234 BOARD
1/13 CH BLOCK
2/13 CL-1 BLOCK
3/13 CL-2 BLOCK
4/13 LD BLOCK
5/13 RR BLOCK
6/13 ID BLOCK
7/13 IR BLOCK
8/13 ER BLOCK
9/13 MC/AA BLOCK
10/13 SB BLOCK
11/13 HI BLOCK
12/13 AU BLOCK
13/13 CN BLOCK
FLEXIBLE
FFC-001
CONTINUDE ON (SEE PAGE 4-3)
SE-100 BOARD (TR MODEL)
SE-101 BOARD (TRV MODEL)
CN451 10P
SE452 YAW
SE451 PITCH
STEADY SHOT MODEL
FP-44 FLEXIBLE (TRV MODEL)
J451 (HEADPHONE)
TRV MODEL
CN972 20P
CN974 8P
CN101 16P
CN976 10P
CN978 12P
CN979 15P
FP-43 FLEXIBLE
FP
CN981 48P
CONTINUDE ON (SEE PAGE 4-4)
J321 MIC (PLUG IN POWER)
CN303 20P
MIC901 INT-MIC-L
CN5707 2P
MIC902 INT-MIC-R
CN302 2P
S302 POWER CAMERA
S303 VTR
STEREO MODEL
D301
D302
D304
MA-374 BOARD (TR MODEL)
MA-375 BOARD (TRV MODEL)
1/2 MA BLOCK
2/2 CN BLOCK
M903 LOADING MOTOR
S9C1 MODE SW
VIDEO HEAD
DEW SENSOR
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
FG
FP-249 FLEXIBLE
FP-355 FLEXIBLE
FP-356 FLEXIBLE
B201-MECHANISM

TR MODEL : CCD-TR317E/TR417E/TR427E/
TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/
TRV57E/TRV67E/TRV87E
VTR REC MODEL : CCD-TRV87E:E,AUS,HK,CN,JE
LASER LINK MODEL : CCD-TR918E/TRV87E
STEREO MODEL : CCD-TR918E/TRV87E
VIDEO LIGHT MODEL : CCD-TR617E/TR717E/TR918E/
TRV57E/TRV67E/TRV87E
STEADY SHOT MODEL : CCD-TR617E/TR717E/TR918E/
TRV57E/TRV67E/TRV87E

(ABBREVIATION)
AUS : Australian MODEL
HK : Hong Kong MODEL
CN : Chinese MODEL
JE : Tourist MODEL

16

FRAME SCHEMATIC DIAGRAM (2/2)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J
K
L
M
TRV MODEL
PANEL_OPEN/CLOSE_SW
CN009 2P
TR MODEL
LCD
AE
Hi8
CHARACTER DISPLAY
FP-155 FLEXIBLE
CN010 26P
CN001 45P
CF-66 BOARD (TR MODEL)
CF-67 BOARD (TRV MODEL)
S002 DATA
S003 PROGRAM AE
S005 COUNTER RESET
S006 MENU
S007 EXPOSURE
DIGITAL EFFECT MODEL
(CF-66 BOARD)
(CF-67 BOARD)
S001 DIGITAL EFFECT
S009 BACK LIGHT
S010 TITLE
S011 TIME
S012 FADER
S003/S014 PROGRAM AE
S015/S016 PICTURE EFFECT
S004 PICTURE EFFECT
S008 END SEARCH
S010 BACK LIGHT
S011 TITLE
S012 TIME
S013 FADER
S014 DISPLAY
S008 SEL/PUSH EXEC
S009 SEL/PUSH EXEC
FFC-001 FLEXIBLE
CONTINUE ON (SEE PAGE 4-2)
CN006 XXP
CN008 8P
FP-62 FLEXIBLE
SUPER NIGHT SHOT MODEL
SUPER NIGHT SHOT
S1
FFC-256 FLEXIBLE
CN007 4P
VF-129 BOARD
CN901 4P
W901
FBT
CN902 4P
V901 CRT ASSY
DY
CN005 6P
CN004 12P
CONTROL SWITCH BLOCK(MR-8500)
S001
AUTO
MANUAL
INFINITY
FOCUS
RV001
NEAR
FAR
CN002 8P
CN003 2P
(TRV MODEL)
SP901 SPEAKER
LITHIUM BATTERY
BUZZER
(TR MODEL)
CN931 48P
CONTINUE ON (SEE PAGE 4-2)
CN933 8P
CN301 7P
DD-134 BOARD
DP-78 HARNESS
DC IN
J901 BATTERY TERMINAL
TRV MODEL
ND901 BACK-LIGHT
LCD901 COLOR LCD UNIT
CN5604 10P
CN5501 24P
CN5704 6P
CN5702 12P
CN5701 8P
CN5502 10P
CPC
PD-117 BOARD
S5701 LCD BRIGHT +
S5703 LCD BRIGHT -
S5704 VOLUME +
S5705 VOLUME -
CN5705 26P
FP-52 FLEXIBLE(BL MODEL)
FP-155 FLEXIBLE(EXCEPT BL MODEL)
CN5703 6P
FP-152 FLEXIBLE
(PANEL REVERS)
16

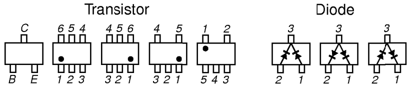
TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
SUPER NIGHT SHOT MODEL : CCD-TR918E/TRV87E
BL MODEL : CCD-TR918E/TRV87E
DIGITAL EFFECT MODEL : CCD-TR918E/TRV87E

4-2. PRINTED WIRING BOARDS AND SCHEMATIC DIAGRAMS

THIS NOTE IS COMMON FOR WIRING BOARDS AND SCHEMATIC DIAGRAMS
(In addition to this, the necessary note is printed in each block)

(For printed wiring boards)

- ▒: Pattern from the side which enables seeing.
  (The other layers' patterns are not indicated.)
- Through hole is omitted.
- Circled numbers refer to waveforms.
- There are few cases that the part printed on diagram isn't mounted in this model.
- Chip parts.



- Model
  TR model:CCD-TR317E/TR417E/TR427E/TR617E/TR717E/
  TR918E
  TRV model: CCD-TRV37E/TRV47E/TRV48E/TRV57E/
  TRV67E/TRV87E

(For schematic diagrams)

- All capacitors are in mF unless otherwise noted. pF : m mF. 50V or less are not indicated except for electrolytics and tantalums.
- Chip resistors are 1/10W unless otherwise noted.
  kW=1000W, MW=1000kW.
- Caution when replacing chip parts.
  New parts must be attached after removal of chip.
  Be careful not to heat the minus side of tantalum capacitor, Because it is damaged by the heat.
- Some chip part will be indicated as follows.

Example C541 L452
22U 10UH
TA A 2520

Kinds of capacitor
Temperature characteristics
External dimensions (mm)

- Constants of resistors, capacitors, ICs and etc with XX indicate that they are not used.
  In such cases, the unused circuits may be indicated.
- All variable and adjustable resistors have characteristic curve B, unless otherwise noted.
- Signal name
  XEDIT → $\overline{\text{EDIT}}$ PB/XREC → PB/$\overline{\text{REC}}$
- : non flammable resistor
- : fusible resistor
- ▭ : panel designation
- ━━━ : B+ Line *
- ▬ ▬ ▬ : B– Line *
- ⇨ : IN/OUT direction of (+,–) B LINE. *
- ▭ : adjustment for repair. *
- Circled numbers refer to waveforms. *

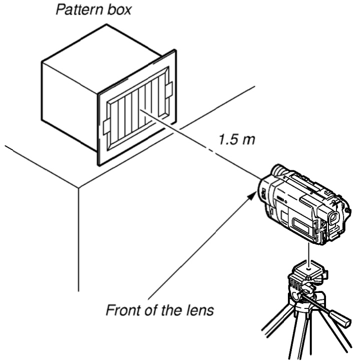
* Indicated by the color red.

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

(Measuring conditions voltage and waveform)

- Voltages and waveforms are measured between the measurement points and ground when camera shoots color bar chart of pattern box. They are reference values and reference waveforms. *
  (VOM of DC 10 MΩ input impedance is used.).
- Voltage values change depending upon input impedance of VOM used.) *

1. Connection



2. Adjust the distance so that the output waveform of Fig. a and the Fig. b can be obtain.

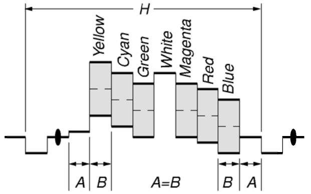


Fig. a (Video output terminal output waveform)

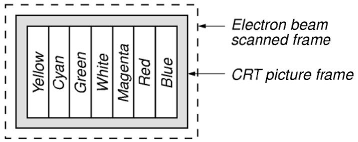
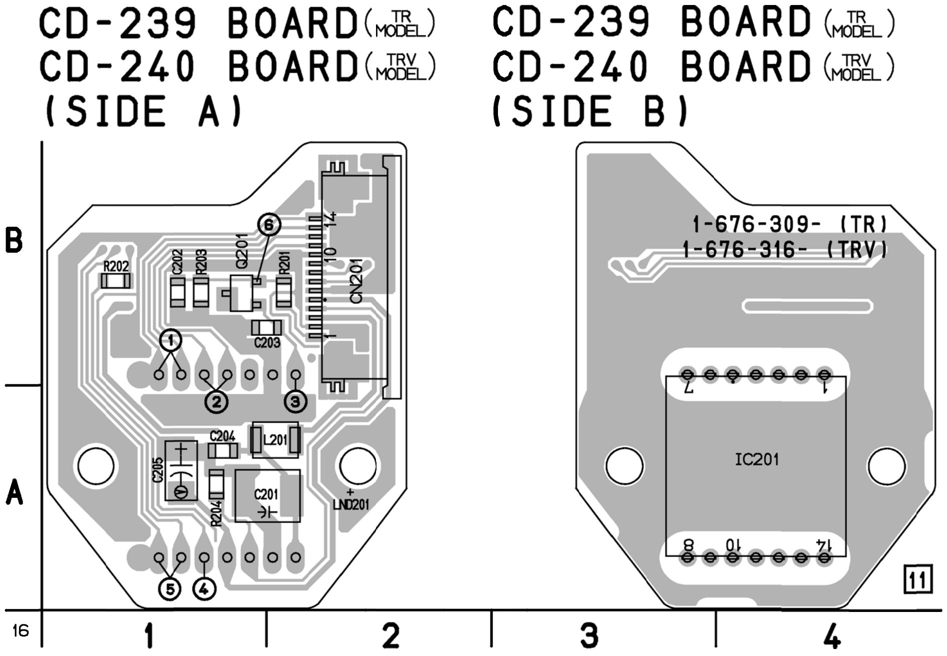


Fig.b (Picture on monitor TV)

When indicating parts by reference number, pleas include the board name.

CD-239/240 (CCD IMAGER) PRINTED WIRING BOARD

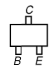
— Ref. No. CD-239/240 Board; 2,000 Series —


CD-239 BOARD (TR MODEL)
CD-240 BOARD (TRV MODEL)
(SIDE A)
CD-239 BOARD (TR MODEL)
CD-240 BOARD (TRV MODEL)
(SIDE B)
B
A
R202
C202
R203
Q201
R201
CN201
14
10
1
C203
C204
L201
C205
C201
R204
LND201
①
②
③
④
⑤
⑥
1-676-309- (TR)
1-676-316- (TRV)
IC201
7
1
8
10
14
11
16
1
2
3
4

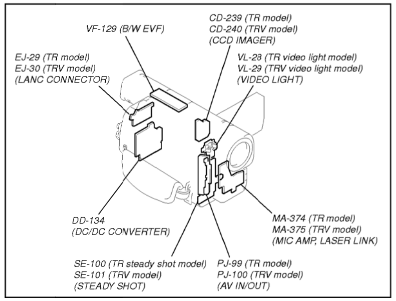
For printed wiring board

- Refer to page 4-91 for location.
- Chip parts

Transistor

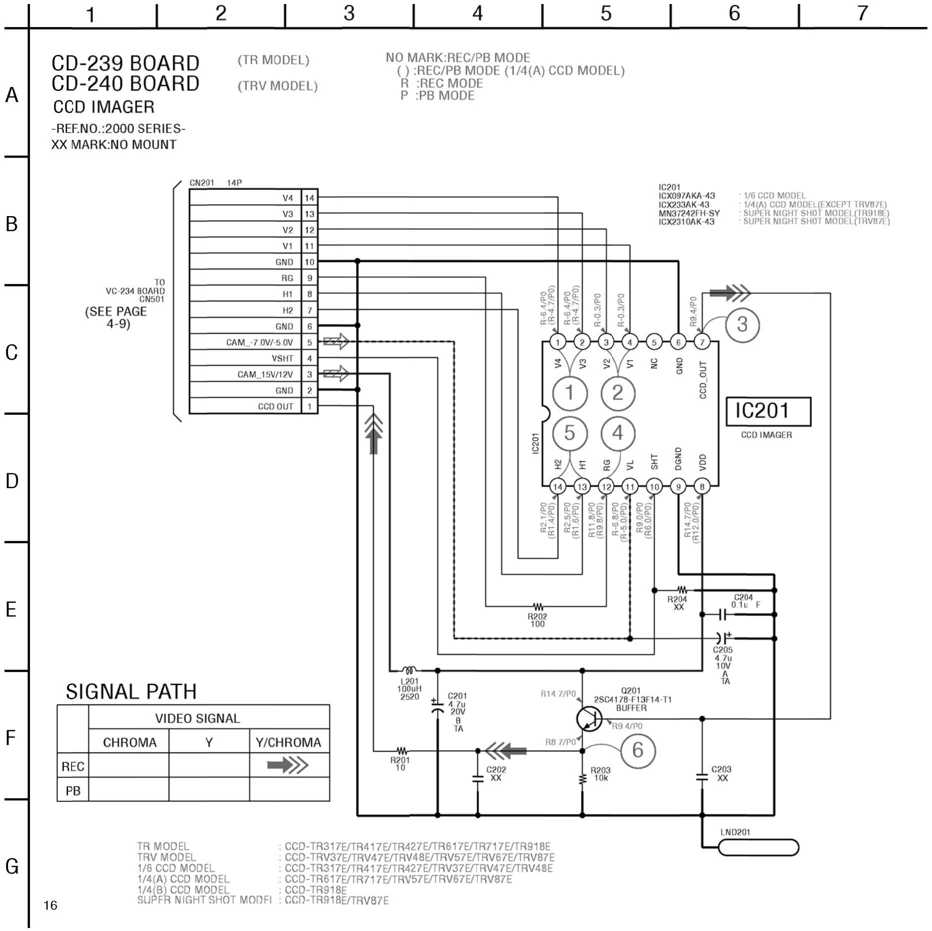


There are few cases that the part printed on this diagram isn't mounted in this model.


VF-129 (B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-28 (TR video light model)
VL-29 (TRV video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-100 (TR steady shot model)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

For Schematic Diagram

- Refer to page 4-87 for waveforms.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A
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C
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G
CD-239 BOARD (TR MODEL)
CD-240 BOARD (TRV MODEL)
CCD IMAGER
-REF.NO.:2000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
( ) :REC/PB MODE (1/4(A) CCD MODEL)
R :REC MODE
P :PB MODE
CN201 14P
V4 14
V3 13
V2 12
V1 11
GND 10
RG 9
H1 8
H2 7
GND 6
CAM_-7.0V/-5.0V 5
VSHT 4
CAM_15V/12V 3
GND 2
CCD OUT 1
TO VC-234 BOARD CN501
(SEE PAGE 4-9)
IC201
ICX097AKA-43 : 1/6 CCD MODEL
ICX233AK-43 : 1/4(A) CCD MODEL(EXCEPT TRV87E)
MN37242FH-SY : SUPER NIGHT SHOT MODEL(TR918E)
ICX2310AK-43 : SUPER NIGHT SHOT MODEL(TRV87E)
R-6.4/P0 (R-4.7/P0)
R-6.4/P0 (R-4.7/P0)
R-0.3/P0
R-0.3/P0
R9.4/P0
V4
V3
V2
V1
NC
GND
CCD_OUT
H2
H1
RG
VL
SHT
DGND
VDD
IC201
IC201
CCD IMAGER
R2.1/P0 (R1.4/P0)
R2.5/P0 (R1.6/P0)
R11.8/P0 (R9.8/P0)
R-6.8/P0 (R-5.0/P0)
R9.0/P0 (R6.0/P0)
R14.7/P0 (R12.0/P0)
R202 100
R204 XX
C204 0.1u F
C205 4.7u 10V A TA
L201 100uH 2520
C201 4.7u 20V B TA
Q201 2SC4178-F13F14-T1 BUFFER
R14.7/P0
R9.4/P0
R8.7/P0
R201 10
C202 XX
R203 10k
C203 XX
LND201
①
②
③
④
⑤
⑥
16

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡
PB			

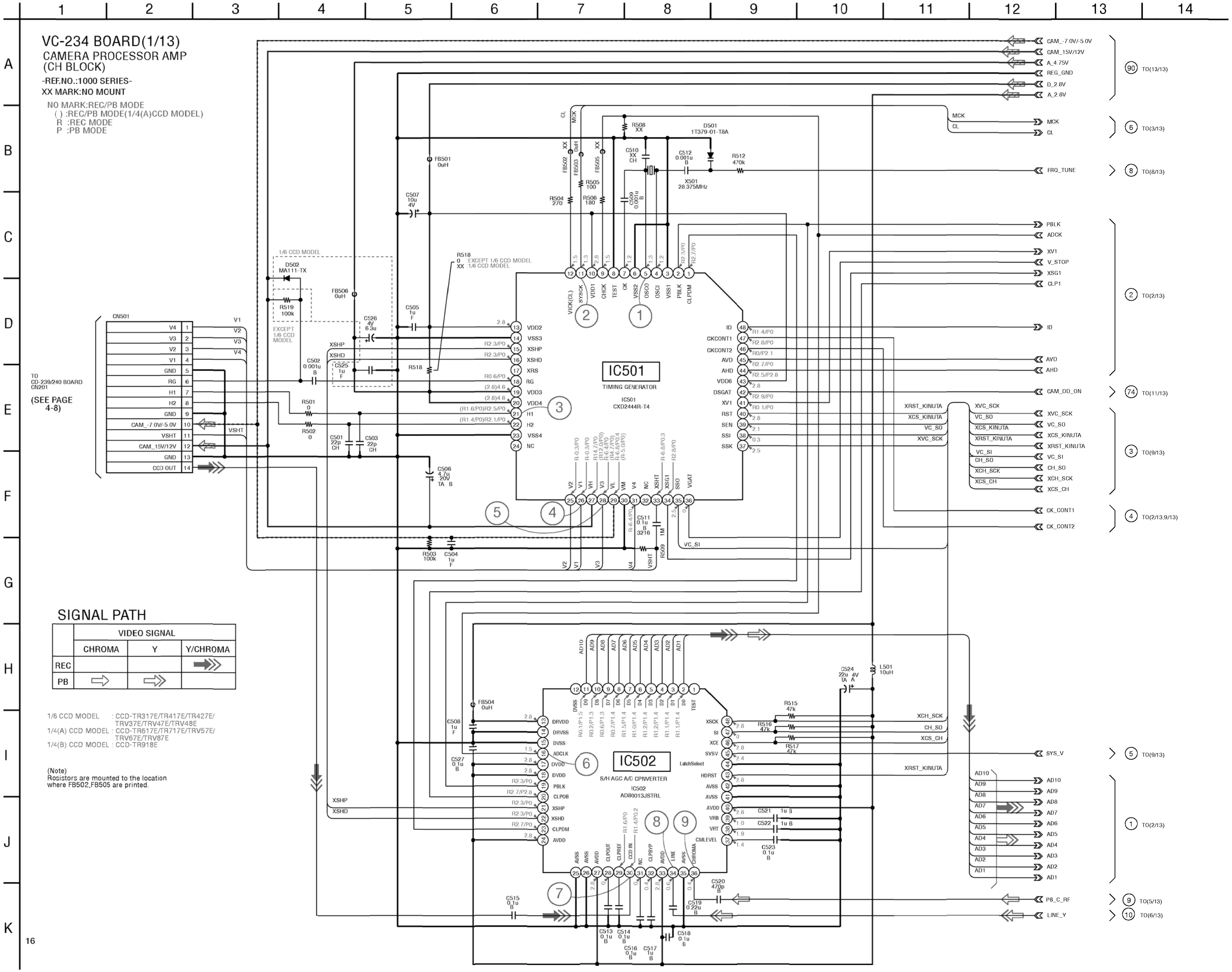
TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
1/6 CCD MODEL : CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E
1/4(A) CCD MODEL : CCD-TR617E/TR717E/TRV57E/TRV67E/TRV87E
1/4(B) CCD MODEL : CCD-TR918E
SUPER NIGHT SHOT MODEL : CCD-TR918E/TRV87E

Precautions Upon Replacing CCD imager

- The CD-239/240 board mounted as a repair part is not equipped with a CCD imager.
  When replacing this board, remove the CCD imager from the old one and mount it onto the new one.
- If the CCD imager has been replaced, carry out all the adjustments for the camera section.
- As the CCD imager may be damaged by static electricity from its structure, handle it carefully like for the MOS IC.
  In addition, ensure that the receiver is not covered with dusts nor exposed to strong light.

For Schematic Diagram

- Refer to page 4-35 for printed wiring board.
- Refer to page 4-87 for waveforms.



VC-234 BOARD(1/13)
CAMERA PROCESSOR AMP
(CH BLOCK)

-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT

NO MARK:REC/PB MODE
( ) :REC/PB MODE(1/4(A)CCD MODEL)
R :REC MODE
P :PB MODE

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I
J
K
CN501
TO CD-239/240 BOARD CN201
(SEE PAGE 4-8)
V4
V3
V2
V1
GND
RG
H1
H2
CAM_-7.0V/-5.0V
VSHT
CAM_15V/12V
CCD OUT
IC501
TIMING GENERATOR
IC501 CXD2444R-T4
IC502
S/H AGC A/D CONVERTER
IC502 AD80013JSTRL
D501 1T379-01-T8A
D502 MA111-TX
X501 28.375MHz
1/6 CCD MODEL
EXCEPT 1/6 CCD MODEL
CAM_-7.0V/-5.0V
CAM_15V/12V
A_4.75V
REG_GND
D_2.8V
A_2.8V
TO(13/13)
MCK
CL
TO(3/13)
FRQ_TUNE
TO(8/13)
PBLK
ADCK
XV1
V_STOP
XSG1
CLP1
ID
AVD
AHD
TO(2/13)
CAM_DD_ON
TO(11/13)
XVC_SCK
VC_SO
XCS_KINUTA
XRST_KINUTA
VC_SI
CH_SO
XCH_SCK
XCS_CH
TO(9/13)
CK_CONT1
CK_CONT2
TO(2/13,9/13)
SYS_V
TO(9/13)
AD10
AD9
AD8
AD7
AD6
AD5
AD4
AD3
AD2
AD1
TO(2/13)
PB_C_RF
TO(5/13)
LINE_Y
TO(6/13)
16

SIGNAL PATH

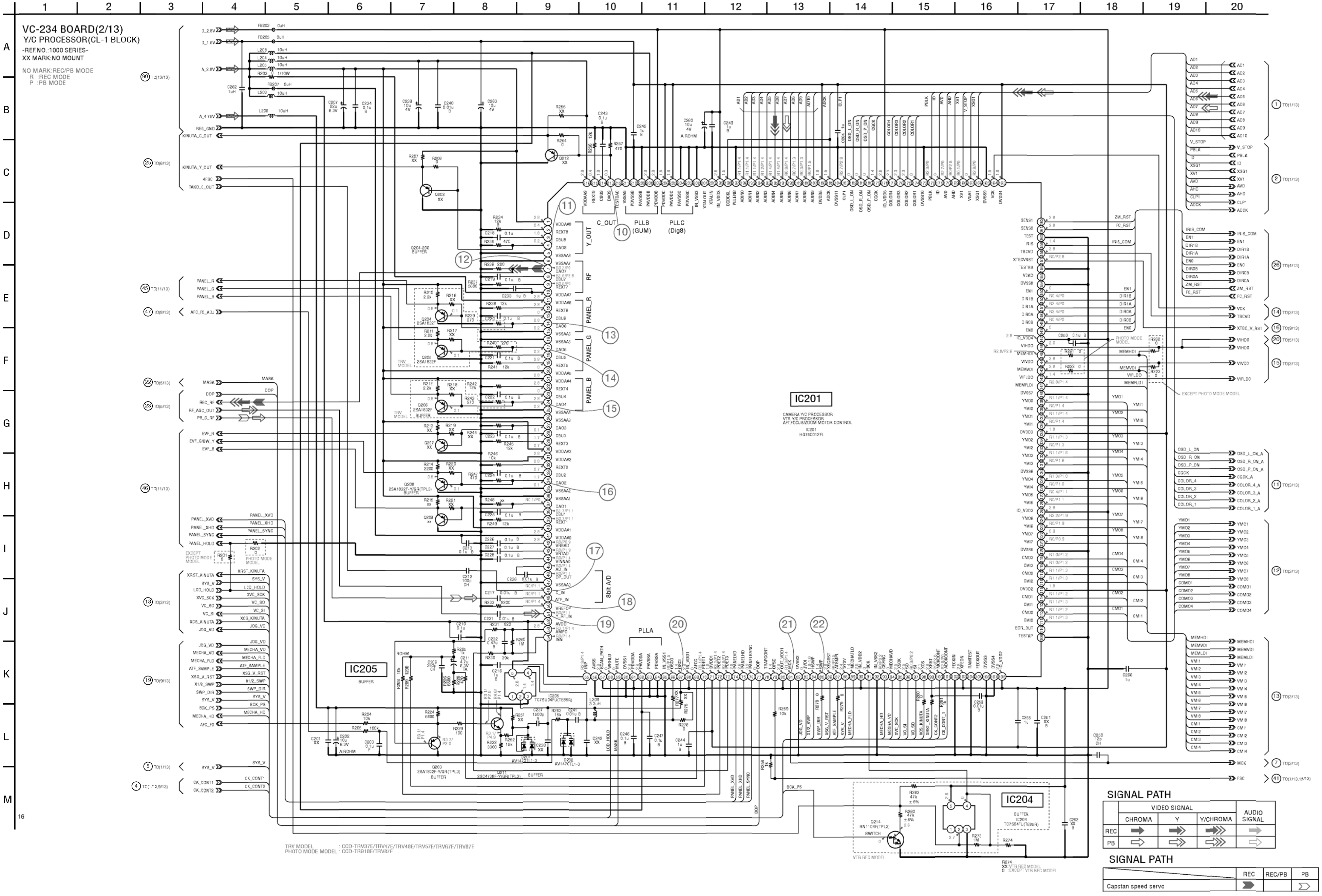
	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC			➡
PB	⇨	⇨	

1/6 CCD MODEL : CCD-TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E
1/4(A) CCD MODEL : CCD-TR617E/TR717E/TRV57E/
TRV67E/TRV87E
1/4(B) CCD MODEL : CCD-TR918E

(Note)
Resistors are mounted to the location where FB502,FB505 are printed.

For Schematic Diagram

- Refer to page 4-35 for printed wiring board.
- Refer to page 4-88 for waveforms.


VC-234 BOARD(2/13)
Y/C PROCESSOR(CL-1 BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC201
CAMERA Y/C PROCESSOR
VTR Y/C PROCESSOR
AFT,FOCUS/ZOOM MOTOR CONTROL
IC201
HG75C012FL
IC205
BUFFER
IC204
BUFFER
IC204
TC7S04FU(TE85R)
IC206
TC7S04FU(TE85R)
Q204-206
BUFFER
Q203
2SA1832F-Y/GR(TPL3)
BUFFER
Q211
2SC4738F-Y/GR(TPL3)
BUFFER
Q214
RN1104F(TPL3)
SWITCH
8bit A/D
PLLA
PLLB
(GUM)
PLLC
(Dig8)
C_OUT
Y_OUT
RF
PANEL_R
PANEL_G
PANEL_B
PHOTO MODE MODEL
EXCEPT PHOTO MODE MODEL
VTR REC MODE
EXCEPT VTR REC MODE
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
PHOTO MODE MODEL : CCD-TR918E/TRV87E
16

SIGNAL PATH

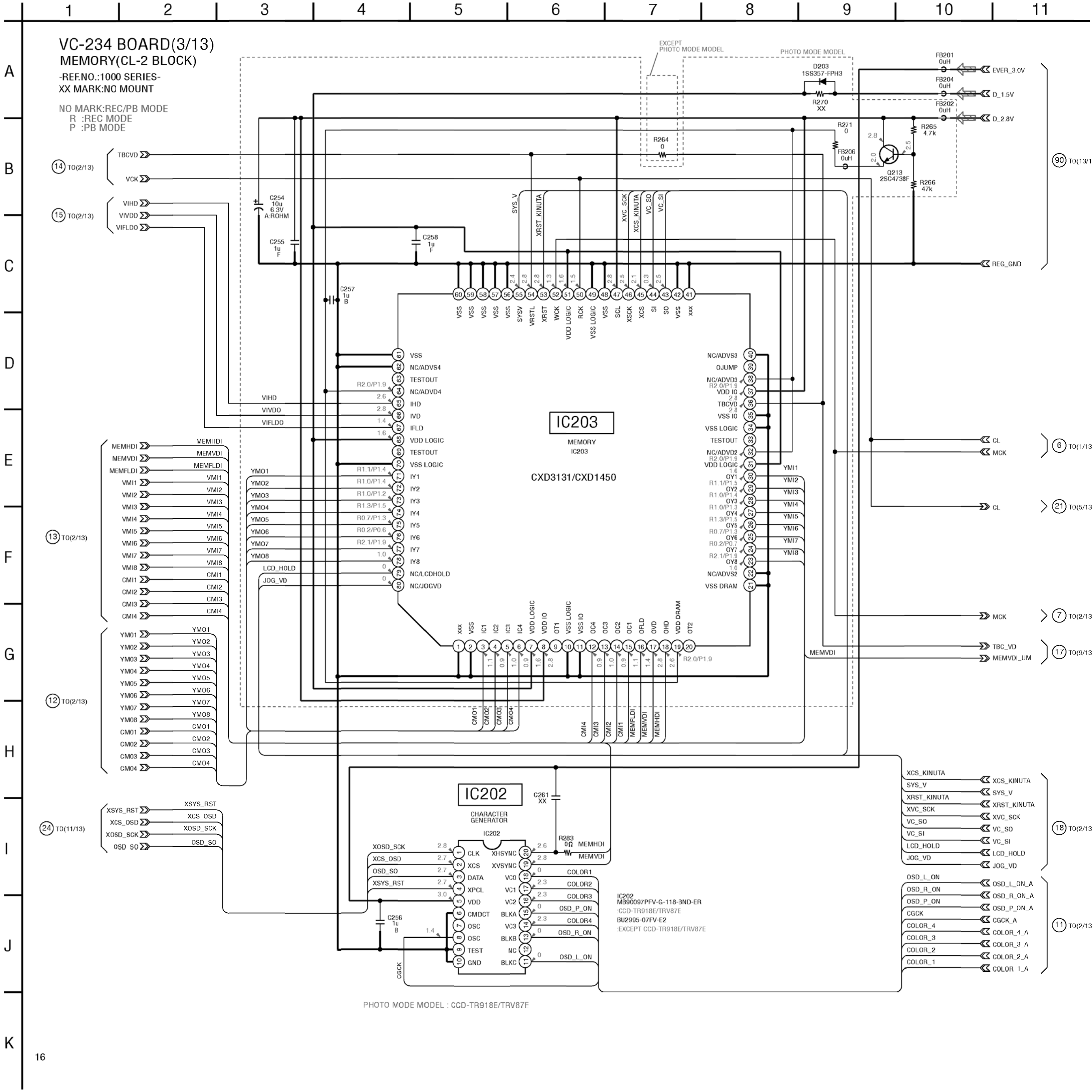
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

SIGNAL PATH

	REC	REC/PB	PB
Capstan speed servo	➤		▷

For Schematic Diagram

- Refer to page 4-35 for printed wiring board.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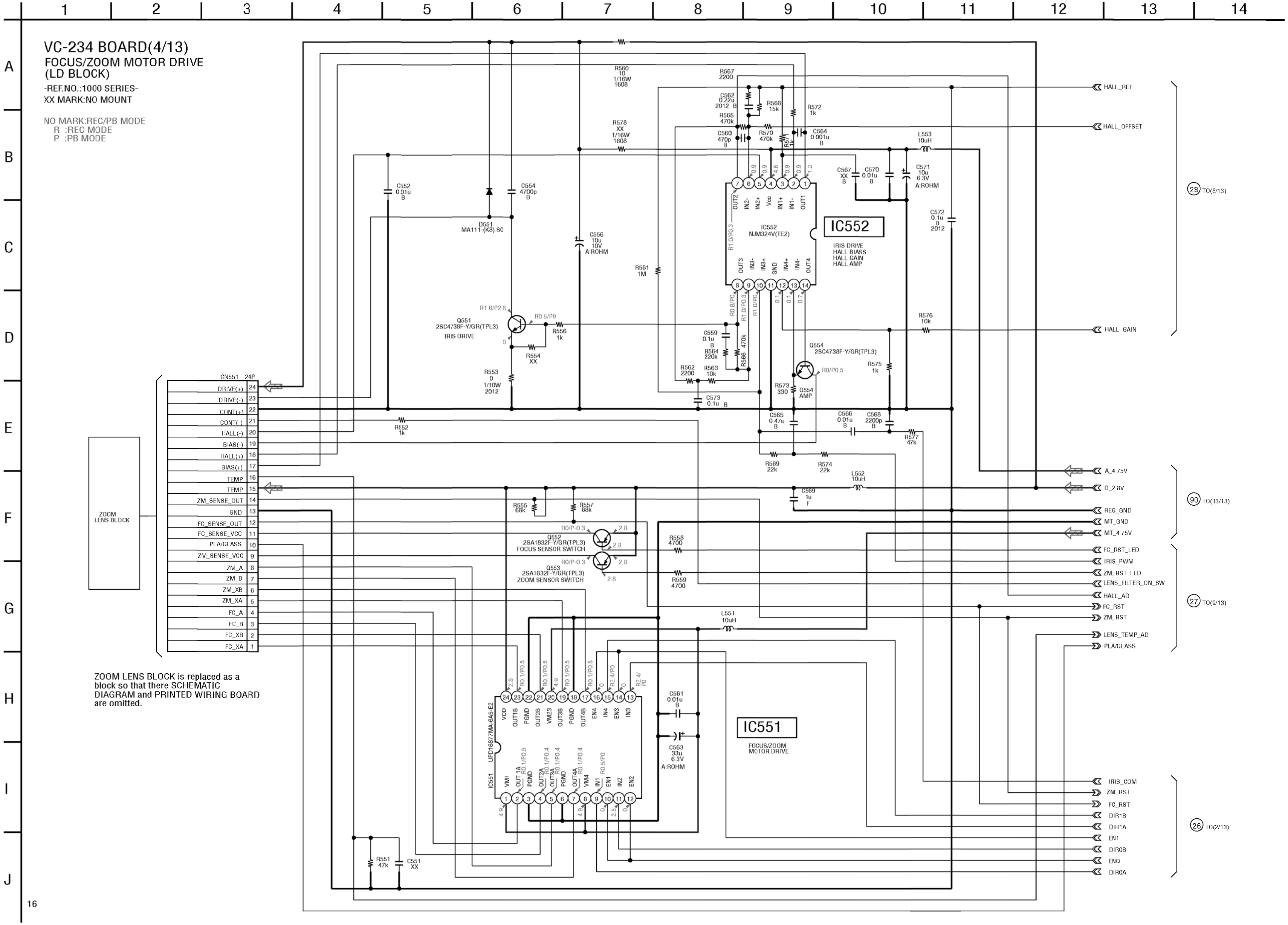
VC-234 BOARD(3/13)
MEMORY(CL-2 BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
EXCEPT PHOTO MODE MODEL
PHOTO MODE MODEL
IC203
MEMORY
IC203
CXD3131/CXD1450
IC202
CHARACTER GENERATOR
IC202
IC202
M390097PFV-G-118-BND-ER
:CCD-TR918E/TRV87E
BU2995-07FV-E2
:EXCEPT CCD-TR918E/TRV87E
PHOTO MODE MODEL : CCD-TR918E/TRV87E
D203 1SS357-FPH3
R270 XX
R264 0
R271 0
FB206 0uH
Q213 2SC4738F
R265 4.7k
R266 47k
FB201 0uH
FB204 0uH
FB202 0uH
EVER_3.0V
D_1.5V
D_2.8V
REG_GND
C254 10u 6.3V A:ROHM
C255 1u F
C258 1u F
C257 1u B
C261 XX
R283 0
C256 1u B
TBCVD
VCK
VIHD
VIVDO
VIFLDO
MEMHDI
MEMVDI
MEMFLDI
VMI1
VMI2
VMI3
VMI4
VMI5
VMI6
VMI7
VMI8
CMI1
CMI2
CMI3
CMI4
YMO1
YMO2
YMO3
YMO4
YMO5
YMO6
YMO7
YMO8
CMO1
CMO2
CMO3
CMO4
XSYS_RST
XCS_OSD
XOSD_SCK
OSD_SO
CL
MCK
TBC_VD
MEMVDI_UM
XCS_KINUTA
SYS_V
XRST_KINUTA
XVC_SCK
VC_SO
VC_SI
LCD_HOLD
JOG_VD
OSD_L_ON_A
OSD_R_ON_A
OSD_P_ON_A
CGCK_A
COLOR_4_A
COLOR_3_A
COLOR_2_A
COLOR_1_A
COLOR1
COLOR2
COLOR3
COLOR4
OSD_P_ON
OSD_R_ON
OSD_L_ON
CGCK
14 TO(2/13)
15 TO(2/13)
13 TO(2/13)
12 TO(2/13)
24 TO(11/13)
90 TO(13/13)
6 TO(1/13)
21 TO(5/13)
7 TO(2/13)
17 TO(9/13)
18 TO(2/13)
11 TO(2/13)
16

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.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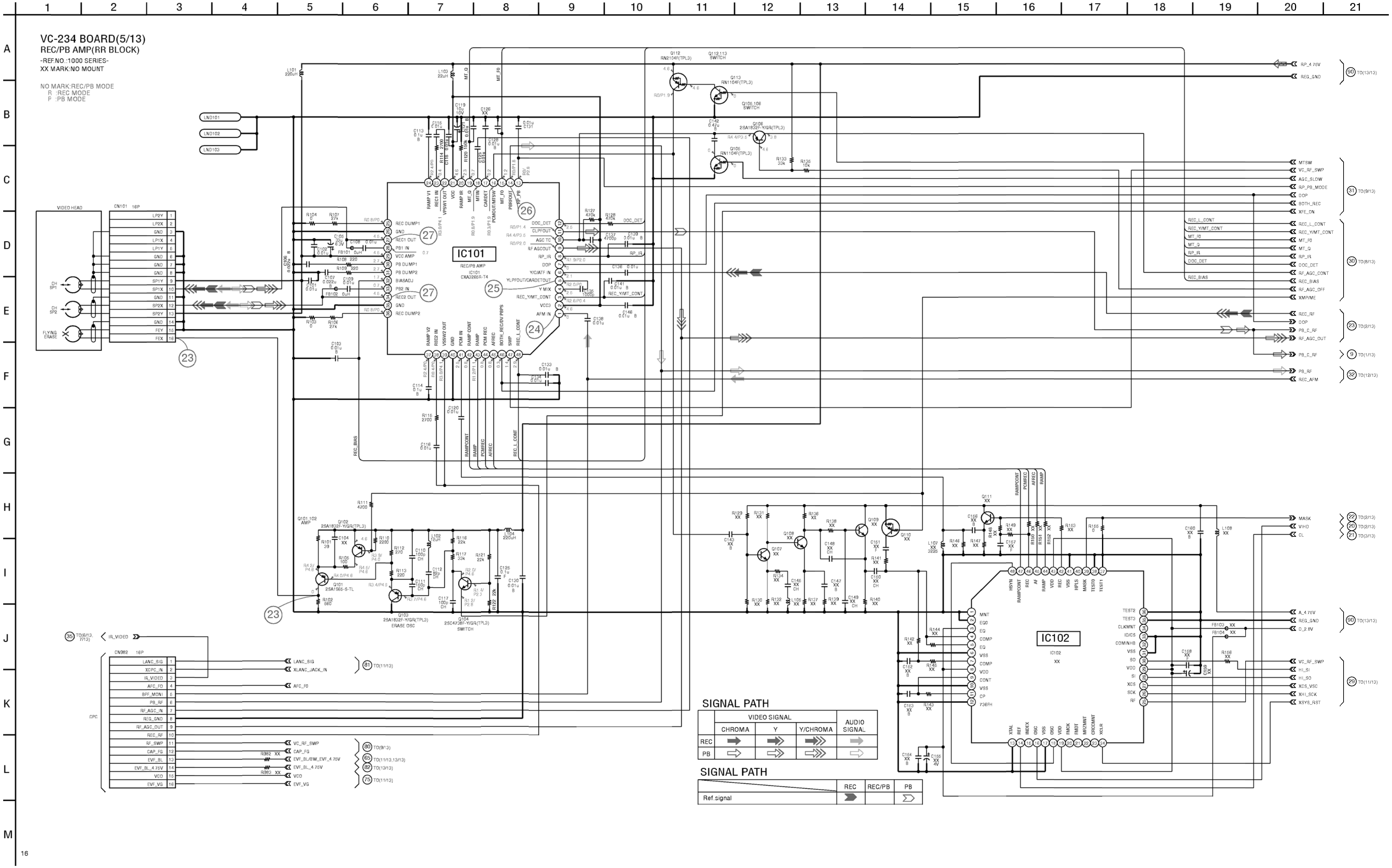
G
H
I
J
VC-234 BOARD(4/13)
FOCUS/ZOOM MOTOR DRIVE
(LD BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
R560 10 1/16W 1608
R567 2200
C562 0.22u 2012 B
R568 15k
R572 1k
R565 470k
C560 470p B
R570 470k
R571 1k
C564 0.001u B
R578 XX 1/16W 1608
L553 10uH
C567 XX B
C570 0.01u B
C571 10u 6.3V A:ROHM
C552 0.01u B
C554 4700p B
D551 MA111-(K8) SC
C556 10u 10V A:ROHM
R561 1M
IC552 NJM324V(TE2)
IC552
IRIS DRIVE
HALL BIASS
HALL GAIN
HALL AMP
C572 0.1u B 2012
OUT2
IN2-
IN2+
Vcc
IN1+
IN1-
OUT1
OUT3
IN3-
IN3+
GND
IN4+
IN4-
OUT4
R1.6/P2.8
R0.5/P0
Q551 2SC4738F-Y/GR(TPL3) IRIS DRIVE
R556 1k
R554 XX
R553 0 1/10W 2012
C559 0.1u B
R564 220k
R566 470k
R562 2200
R563 10k
C573 0.1u B
R576 10k
Q554 2SC4738F-Y/GR(TPL3)
R0/P0.5
R575 1k
R573 330
Q554 AMP
C565 0.47u B
C566 0.01u B
C568 2200p B
R577 47k
R569 22k
R574 22k
L552 10uH
C569 1u F
HALL_REF
HALL_OFFSET
HALL_GAIN
㉘ TO(8/13)
CN551 24P
DRIVE(+)
DRIVE(-)
CONT(+)
CONT(-)
HALL(-)
BIAS(-)
HALL(+)
BIAS(+)
TEMP
TEMP
ZM_SENSE_OUT
GND
FC_SENSE_OUT
FC_SENSE_VCC
PLA/GLASS
ZM_SENSE_VCC
ZM_A
ZM_B
ZM_XB
ZM_XA
FC_A
FC_B
FC_XB
FC_XA
ZOOM LENS BLOCK
R552 1k
R555 68k
R557 68k
R0/P-0.3
Q552 2SA1832F-Y/GR(TPL3) FOCUS SENSOR SWITCH
Q553 2SA1832F-Y/GR(TPL3) ZOOM SENSOR SWITCH
R558 4700
R559 4700
L551 10uH
A_4.75V
D_2.8V
REG_GND
MT_GND
MT_4.75V
(90) TO(13/13)
FC_RST_LED
IRIS_PWM
ZM_RST_LED
LENS_FILTER_ON_SW
HALL_AD
FC_RST
ZM_RST
LENS_TEMP_AD
PLA/GLASS
㉗ TO(9/13)
ZOOM LENS BLOCK is replaced as a block so that there SCHEMATIC DIAGRAM and PRINTED WIRING BOARD are omitted.
C561 0.01u B
C563 33u 6.3V A:ROHM
IC551
FOCUS/ZOOM MOTOR DRIVE
IC551 UPD16877MA-6A5-E2
VDD
OUT1B
PGND
OUT2B
VM23
OUT3B
PGND
OUT4B
EN4
IN4
EN3
IN3
VM1
OUT1A
PGND
OUT2A
OUT3A
PGND
OUT4A
VM4
IN1
EN1
IN2
EN2
R551 47k
C551 XX
IRIS_COM
ZM_RST
FC_RST
DIR1B
DIR1A
EN1
DIR0B
EN0
DIR0A
㉖ TO(2/13)
16

For Schematic Diagram

- Refer to page 4-35 for printed wiring board.
- Refer to page 4-88 for waveforms.


VC-234 BOARD(5/13)
REC/PB AMP(RR BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC101
REC/PB AMP
IC101
CXA3266R-T4
IC102
IC102
XX
VIDEO HEAD
CN101 16P
CH SP1
CH SP2
FLYING ERASE
LND101
LND102
LND103
Q101
2SA1965-S-TL
Q101,102 AMP
Q102
2SA1832F-Y/GR(TPL3)
Q103
2SA1832F-Y/GR(TPL3)
ERASE OSC
Q104
2SC4738F-Y/GR(TPL3)
SWITCH
Q112
RN2104F(TPL3)
Q112,113 SWITCH
Q113
RN1104F(TPL3)
Q105,106 SWITCH
Q106
2SA1832F-Y/GR(TPL3)
Q105
RN1104F(TPL3)
RP_4.75V
REG_GND
90 TO(13/13)
MTSW
VC_RF_SWP
AGC_SLOW
RP_PB_MODE
DOP
BOTH_REC
XFE_ON
31 TO(9/13)
REC_L_CONT
REC_Y/MT_CONT
MT_F0
MT_Q
RP_IR
DOC_DET
RF_AGC_CONT
REC_BIAS
RF_AGC_OFF
XMP/ME
30 TO(8/13)
REC_RF
DOP
PB_C_RF
RF_AGC_OUT
23 TO(2/13)
PB_C_RF
9 TO(1/13)
PB_RF
REC_AFM
32 TO(12/13)
MASK
22 TO(2/13)
VIHD
20 TO(2/13)
CL
21 TO(3/13)
A_4.75V
REG_GND
D_2.8V
90 TO(13/13)
VC_RF_SWP
HI_SI
HI_SO
XCS_VSC
XHI_SCK
XSYS_RST
29 TO(11/13)
35 TO(6/13, 7/13)
IR_VIDEO
CN982 16P
CPC
LANC_SIG
XCPC_IN
IR_VIDEO
AFC_F0
BPF_MONI
PB_RF
RF_AGC_IN
REG_GND
RF_AGC_OUT
REC_RF
RF_SWP
CAP_FG
EVF_BL
EVF_BL_4.75V
VCO
EVF_VG
LANC_SIG
XLANC_JACK_IN
81 TO(11/13)
AFC_F0
VC_RF_SWP
80 TO(9/13)
CAP_FG
R982 XX
EVF_BL/BW_EVF_4.75V
65 TO(11/13,13/13)
EVF_BL_4.75V
82 TO(13/13)
R983 XX
VCO
EVF_VG
75 TO(11/13)
16

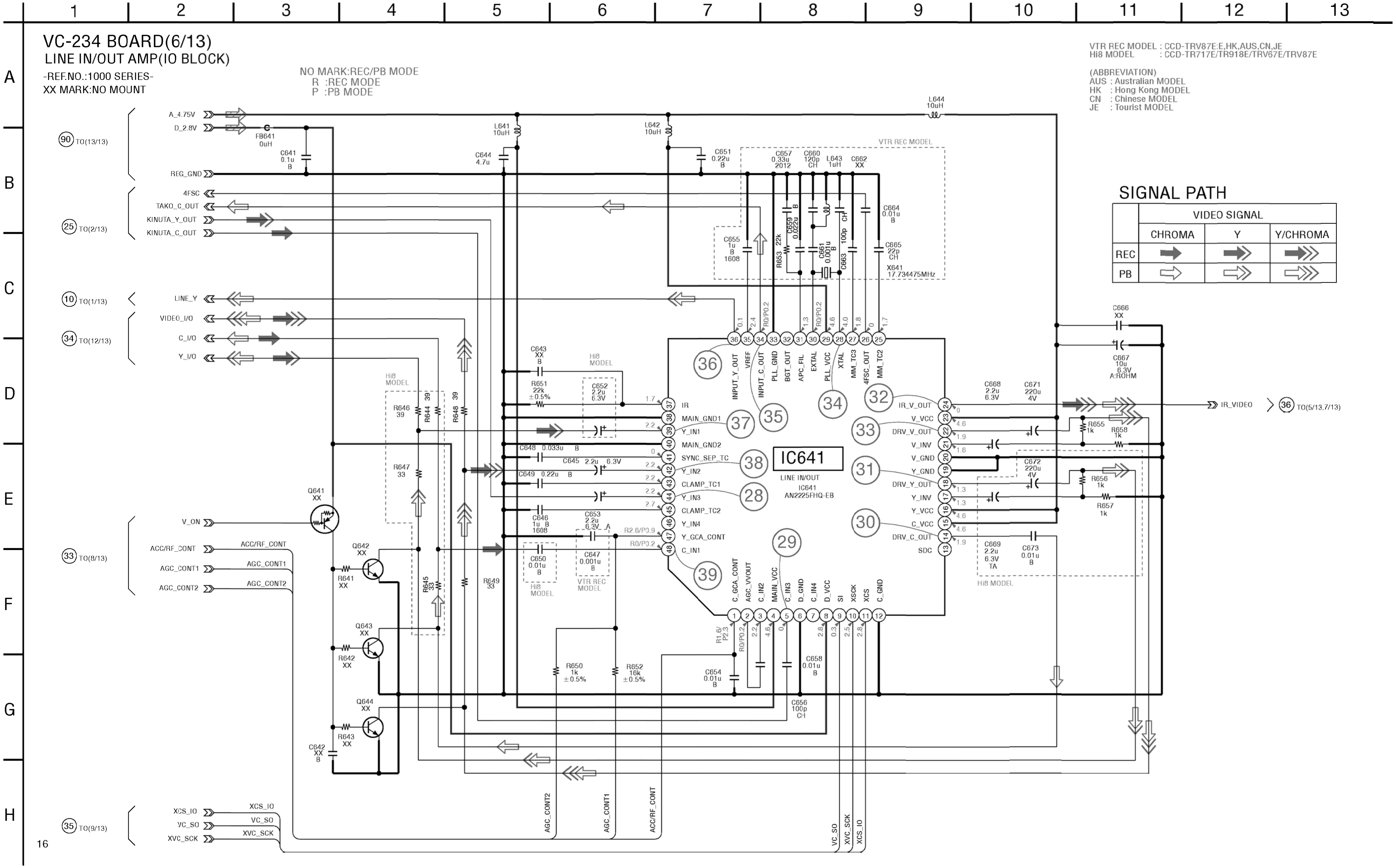
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

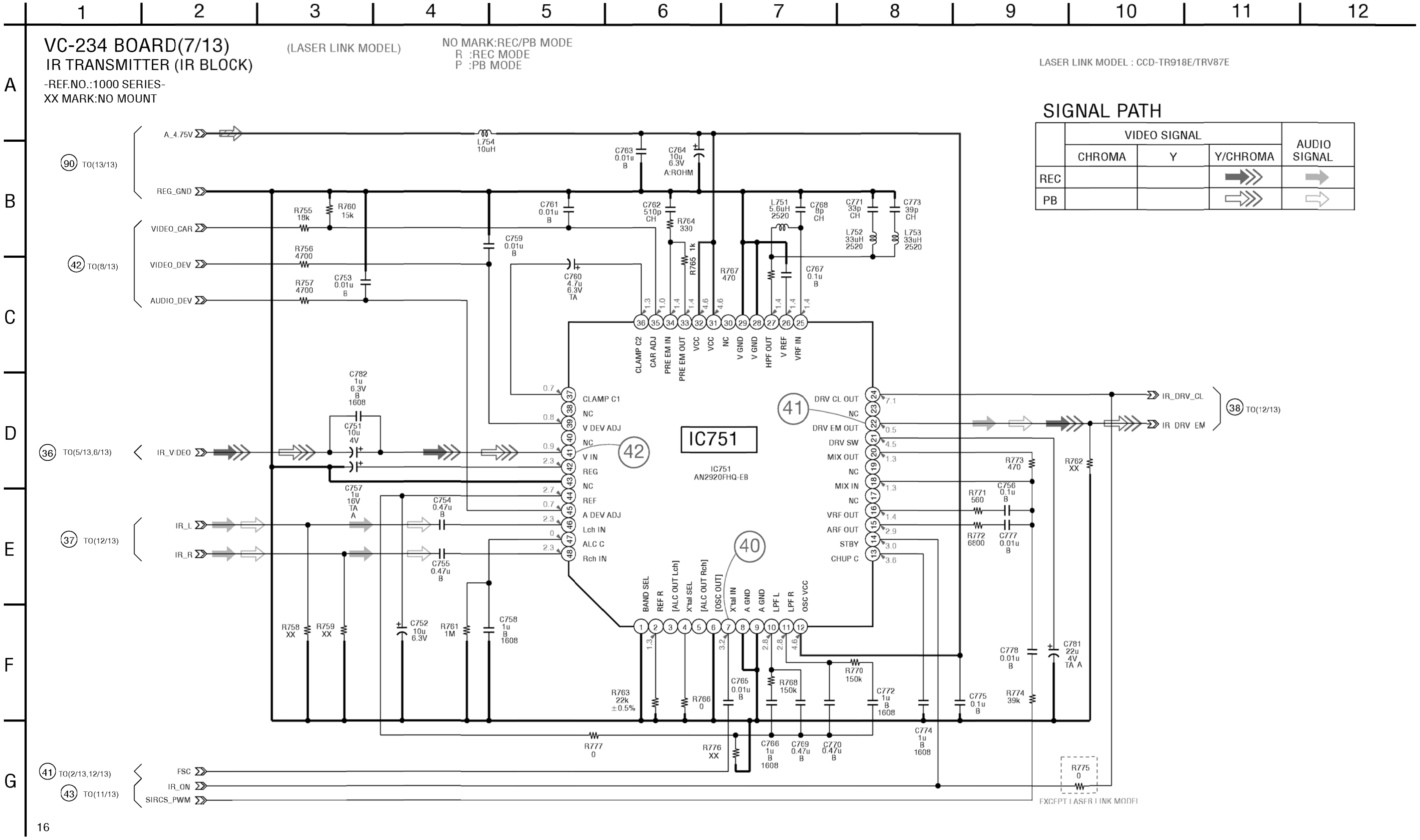
SIGNAL PATH

	REC	REC/PB	PB
Ref.signal	➤		▷

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.
- Refer to page 4-89 for waveforms.


1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H
VC-234 BOARD(6/13)
LINE IN/OUT AMP(IO BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
VTR REC MODEL : CCD-TRV87E:E,HK,AUS,CN,JE
Hi8 MODEL : CCD-TR717E/TR918E/TRV67E/TRV87E
(ABBREVIATION)
AUS : Australian MODEL
HK : Hong Kong MODEL
CN : Chinese MODEL
JE : Tourist MODEL
SIGNAL PATH
VIDEO SIGNAL
CHROMA
Y
Y/CHROMA
REC
PB
90 TO(13/13)
A_4.75V
D_2.8V
REG_GND
25 TO(2/13)
4FSC
TAKO_C_OUT
KINUTA_Y_OUT
KINUTA_C_OUT
10 TO(1/13)
LINE_Y
34 TO(12/13)
VIDEO_I/O
C_I/O
Y_I/O
V_ON
33 TO(8/13)
ACC/RF_CONT
AGC_CONT1
AGC_CONT2
35 TO(9/13)
XCS_IO
VC_SO
XVC_SCK
16
FB641 0uH
C641 0.1u B
C644 4.7u
L641 10uH
L642 10uH
C651 0.22u B
L644 10uH
VTR REC MODEL
C657 0.33u 2012
C660 120p CH
L643 1uH
C662 XX
C655 1u B 1608
R653 22k
C659 0.022u B
C661 0.001u B
C663 100p CH
C664 0.01u B
C665 22p CH
X641 17.734475MHz
C643 XX B
R651 22k ±0.5%
C652 2.2u 6.3V
Hi8 MODEL
R646 39
R644 39
R648 39
R647 33
R645 33
R649 33
C648 0.033u B
C645 2.2u 6.3V
C649 0.22u B
C646 1u B 1608
C653 2.2u 6.3V A
C650 0.01u B
C647 0.001u B
VTR REC MODEL
Q641 XX
Q642 XX
R641 XX
Q643 XX
R642 XX
Q644 XX
R643 XX
C642 XX B
R650 1k ±0.5%
R652 16k ±0.5%
C654 0.01u B
C658 0.01u B
C656 100p CH
IC641
LINE IN/OUT
IC641
AN2225FHQ-EB
IR
MAIN_GND1
Y_IN1
MAIN_GND2
SYNC_SEP_TC
Y_IN2
CLAMP_TC1
Y_IN3
CLAMP_TC2
Y_IN4
Y_GCA_CONT
C_IN1
INPUT_Y_OUT
VREF
INPUT_C_OUT
PLL_GND
BGT_OUT
APC_FIL
EXTAL
PLL_VCC
XTAL
MM_TC3
4FSC_OUT
MM_TC2
IR_V_OUT
V_VCC
DRV_V_OUT
V_INV
V_GND
Y_GND
DRV_Y_OUT
Y_INV
Y_VCC
C_VCC
DRV_C_OUT
SDC
C_GCA_CONT
AGC_VVOUT
C_IN2
MAIN_VCC
C_IN3
D_GND
C_IN4
D_VCC
SI
XSCK
XCS
C_GND
1.7 2.2 0 2.2 2.2 2.2 2.7 R2.6/P0.9 R0/P0.2
0.1 2.4 R0/P0.2 1.3 R0/P0.2 4.6 4.0 1.8 0 1.7
0 4.6 1.9 1.6 1.3 1.3 4.6 1.9
R1.6/P2.3 R0/P0.2 2.2 4.6 0 2.8 0.3 2.5 2.8
28 29 30 31 32 33 34 35 36 37 38 39
C666 XX
C667 10u 6.3V A:ROHM
C668 2.2u 6.3V
C671 220u 4V
R655 1k
R658 1k
C672 220u 4V
R656 1k
R657 1k
C669 2.2u 6.3V TA
C673 0.01u B
Hi8 MODEL
IR_VIDEO
36 TO(5/13,7/13)
AGC_CONT2
AGC_CONT1
ACC/RF_CONT
VC_SO
XVC_SCK
XCS_IO

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.
- Refer to page 4-89 for waveforms.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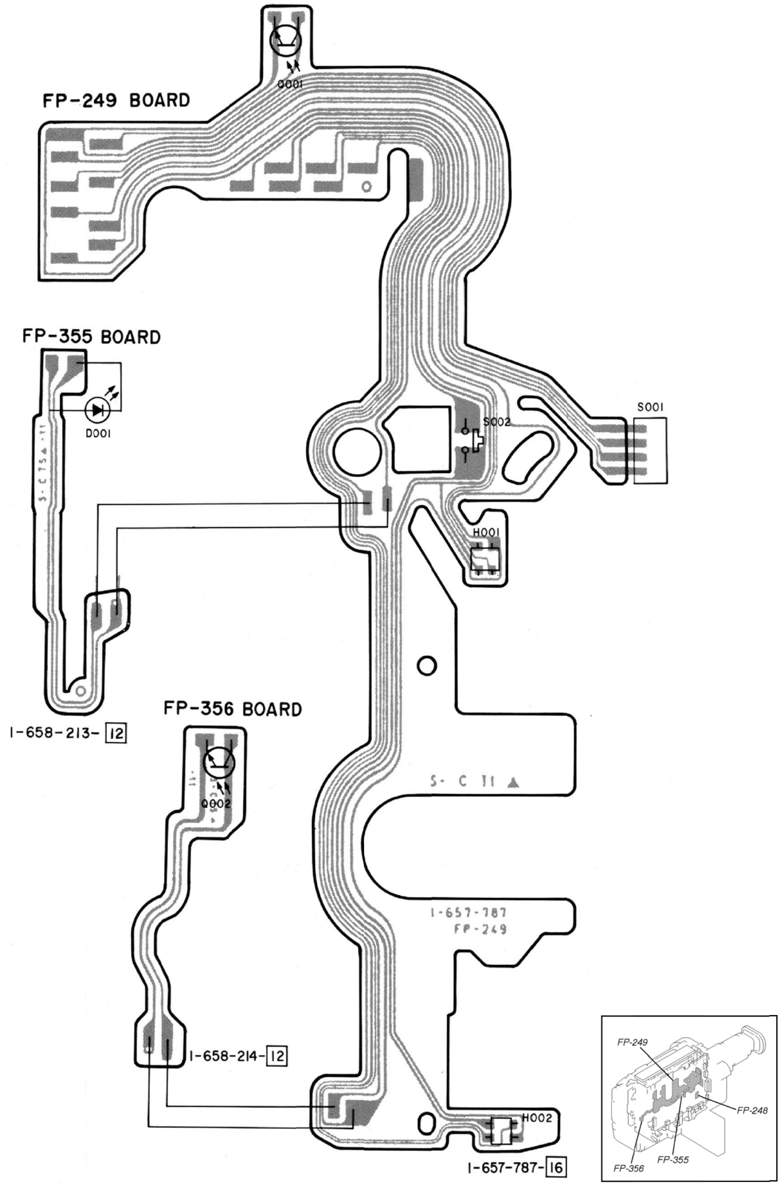
11
12
A
B
C
D
E
F
G
VC-234 BOARD(7/13)
IR TRANSMITTER (IR BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
(LASER LINK MODEL)
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
LASER LINK MODEL : CCD-TR918E/TRV87E
90 TO(13/13)
A_4.75V
REG_GND
42 TO(8/13)
VIDEO_CAR
VIDEO_DEV
AUDIO_DEV
36 TO(5/13,6/13)
IR_VIDEO
37 TO(12/13)
IR_L
IR_R
41 TO(2/13,12/13)
43 TO(11/13)
FSC
IR_ON
SIRCS_PWM
38 TO(12/13)
IR_DRV_CL
IR_DRV_EM
L754 10uH
C763 0.01u B
C764 10u 6.3V A:ROHM
R755 18k
R760 15k
R756 4700
R757 4700
C753 0.01u B
C761 0.01u B
C759 0.01u B
C760 4.7u 6.3V TA
C762 510p CH
R764 330
R765 1k
R767 470
L751 5.6uH 2520
C768 8p CH
C771 33p CH
C773 39p CH
L752 33uH 2520
L753 33uH 2520
C767 0.1u B
C782 1u 6.3V B 1608
C751 10u 4V
C757 1u 16V TA A
C754 0.47u B
C755 0.47u B
R758 XX
R759 XX
C752 10u 6.3V
R761 1M
C758 1u B 1608
R763 22k ±0.5%
R766 0
C765 0.01u B
R768 150k
R770 150k
C772 1u B 1608
C775 0.1u B
C766 1u B 1608
C769 0.47u B
C770 0.47u B
C774 1u B 1608
R776 XX
R777 0
R773 470
R762 XX
R771 560
C756 0.1u B
R772 6800
C777 0.01u B
C778 0.01u B
C781 22u 4V TA A
R774 39k
R775 0
EXCEPT LASER LINK MODEL
IC751
IC751 AN2920FHQ-EB
40
41
42
1 BAND SEL
2 REF R
3 [ALC OUT Lch]
4 X'tal SEL
5 [ALC OUT Rch]
6 [OSC OUT]
7 X'tal IN
8 A GND
9 A GND
10 LPF L
11 LPF R
12 OSC VCC
13 CHUP C
14 STBY
15 ARF OUT
16 VRF OUT
17 NC
18 MIX IN
19 NC
20 MIX OUT
21 DRV SW
22 DRV EM OUT
23 NC
24 DRV CL OUT
25 VRF IN
26 V REF
27 HPF OUT
28 V GND
29 V GND
30 NC
31 VCC
32 VCC
33 PRE EM OUT
34 PRE EM IN
35 CAR ADJ
36 CLAMP C2
37 CLAMP C1
38 NC
39 V DEV ADJ
40 NC
41 V IN
42 REG
43 NC
44 REF
45 A DEV ADJ
46 Lch IN
47 ALC C
48 Rch IN
1.3
1.0
1.4
1.4
4.6
4.6
1.4
1.4
1.4
0.7
0.8
0.9
2.3
2.7
0.7
2.3
0
2.3
7.1
0.5
4.5
1.3
1.3
1.4
2.9
3.0
3.6
1.3
3.2
2.8
2.8
4.6
16

SIGNAL PATH

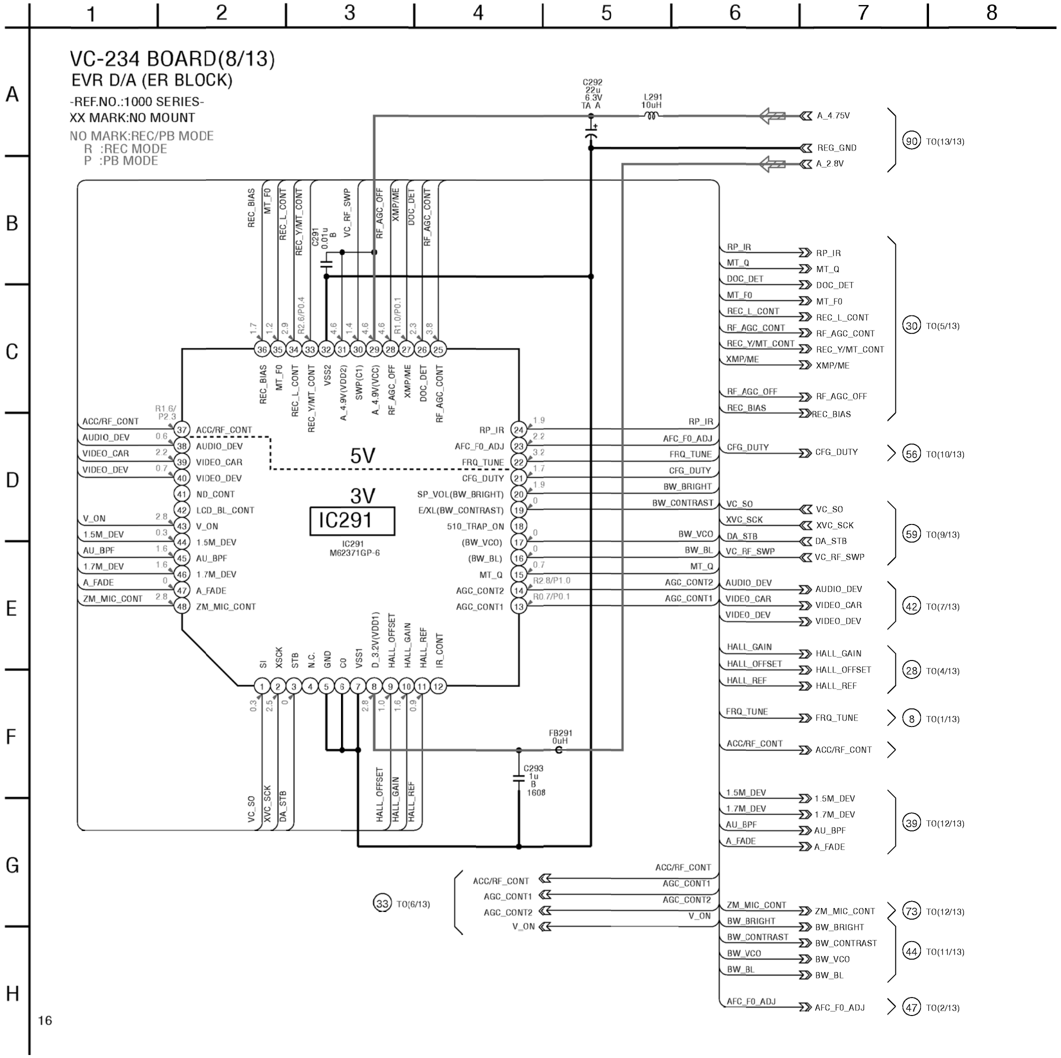
	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	➡
PB			⇨	⇨

FP-249 (S/T REEL SENSOR, TAPE TOP), FP-356 (TAPE END), FP-355 (TAPE LED) FLEXIBLE BOARD

— Ref. No. FP-249, 356, 355 FLEXIBLE board; 1,000 series —


FP-249 BOARD
Q001
FP-355 BOARD
D001
S002
S001
H001
1-658-213- 12
FP-356 BOARD
Q002
S- C 11 ▲
1-658-214- 12
1-657-787
FP-249
H002
1-657-787- 16
FP-249
FP-248
FP-355
FP-356

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.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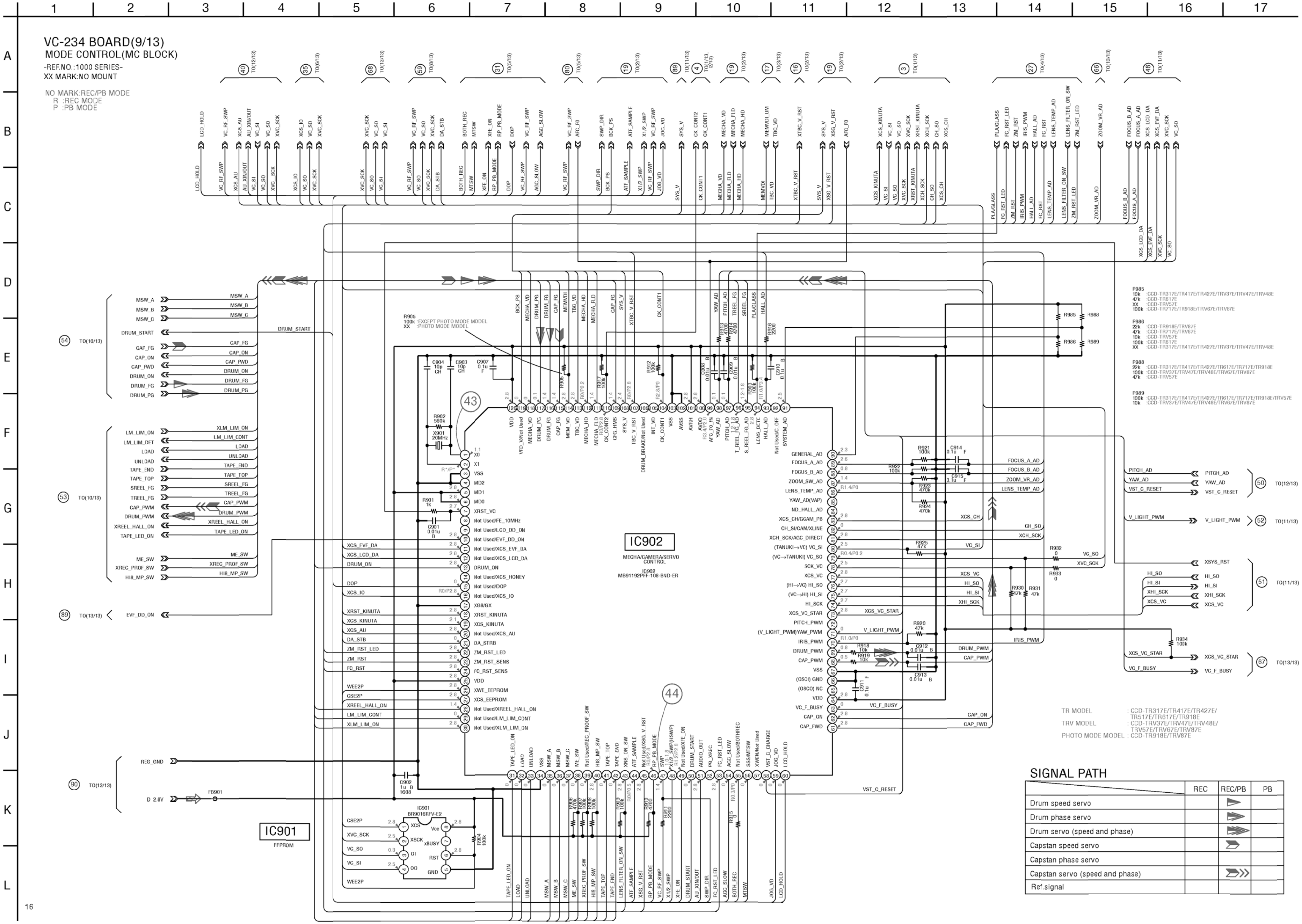
A
B
C
D
E
F
G
H
VC-234 BOARD(8/13)
EVR D/A (ER BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
C292 22u 6.3V TA A
L291 10uH
A_4.75V
REG_GND
A_2.8V
90 TO(13/13)
C291 0.01u B
REC_BIAS
MT_F0
REC_L_CONT
REC_Y/MT_CONT
VSS2
A_4.9V(VDD2)
SWP(C1)
A_4.9V(VCC)
RF_AGC_OFF
XMP/ME
DOC_DET
RF_AGC_CONT
VC_RF_SWP
RP_IR
MT_Q
DOC_DET
MT_F0
REC_L_CONT
RF_AGC_CONT
REC_Y/MT_CONT
XMP/ME
RF_AGC_OFF
REC_BIAS
30 TO(5/13)
CFG_DUTY
56 TO(10/13)
VC_SO
XVC_SCK
DA_STB
VC_RF_SWP
59 TO(9/13)
AUDIO_DEV
VIDEO_CAR
VIDEO_DEV
42 TO(7/13)
HALL_GAIN
HALL_OFFSET
HALL_REF
28 TO(4/13)
FRQ_TUNE
8 TO(1/13)
ACC/RF_CONT
1.5M_DEV
1.7M_DEV
AU_BPF
A_FADE
39 TO(12/13)
ZM_MIC_CONT
73 TO(12/13)
BW_BRIGHT
BW_CONTRAST
BW_VCO
BW_BL
44 TO(11/13)
AFC_F0_ADJ
47 TO(2/13)
ACC/RF_CONT
AGC_CONT1
AGC_CONT2
V_ON
33 TO(6/13)
ACC/RF_CONT
AUDIO_DEV
VIDEO_CAR
VIDEO_DEV
ND_CONT
LCD_BL_CONT
V_ON
1.5M_DEV
AU_BPF
1.7M_DEV
A_FADE
ZM_MIC_CONT
RP_IR
AFC_F0_ADJ
FRQ_TUNE
CFG_DUTY
SP_VOL(BW_BRIGHT)
E/XL(BW_CONTRAST)
510_TRAP_ON
(BW_VCO)
(BW_BL)
MT_Q
AGC_CONT2
AGC_CONT1
5V
3V
IC291
IC291 M62371GP-6
SI
XSCK
STB
N.C.
GND
C0
VSS1
D_3.2V(VDD1)
HALL_OFFSET
HALL_GAIN
HALL_REF
IR_CONT
VC_SO
XVC_SCK
DA_STB
FB291 0uH
C293 1u B 1608
R1.6/P2.3
R2.8/P1.0
R0.7/P0.1
R2.6/P0.4
R1.0/P0.1
16

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.
- Refer to page 4-89 for waveforms.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A
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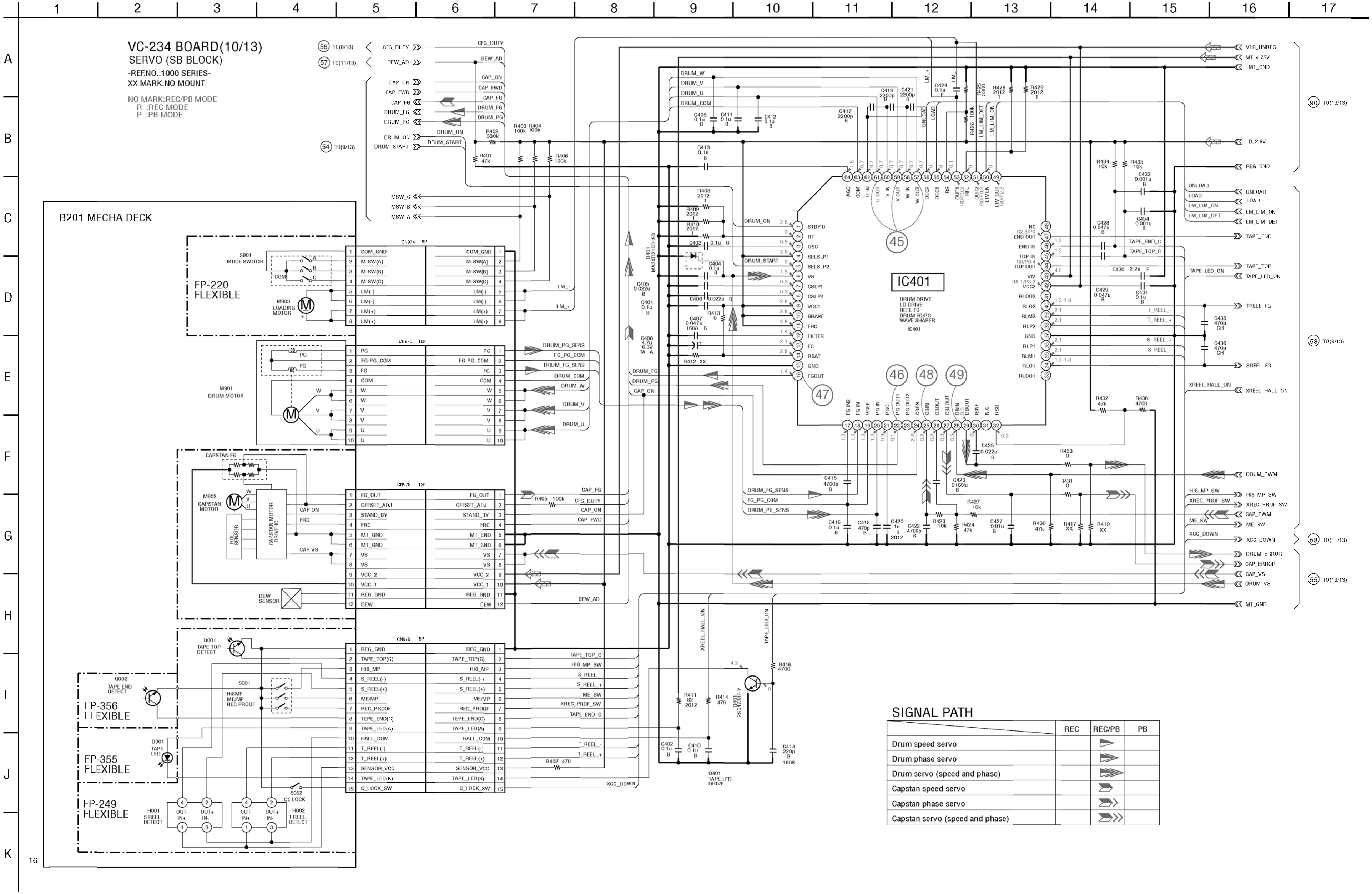
E
F
G
H
I
J
K
L
VC-234 BOARD(9/13)
MODE CONTROL(MC BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC902
MECHA/CAMERA/SERVO CONTROL
IC902 MB91192PFF-108-BND-ER
IC901
EEPROM
IC901 BR9016RFV-E2
(43)
(44)
R905 100k :EXCEPT PHOTO MODE MODEL
XX :PHOTO MODE MODEL
X901 20MHz
MSW_A
MSW_B
MSW_C
DRUM_START
CAP_FG
CAP_ON
CAP_FWD
DRUM_ON
DRUM_FG
DRUM_PG
LM_LIM_ON
LM_LIM_DET
LOAD
UNLOAD
TAPE_END
TAPE_TOP
SREEL_FG
TREEL_FG
CAP_PWM
DRUM_PWM
XREEL_HALL_ON
TAPE_LED_ON
ME_SW
XREC_PROF_SW
HI8_MP_SW
EVF_DD_ON
REG_GND
D 2.8V
FB901
TO(10/13)
TO(13/13)
TO(12/13)
TO(11/13)
PITCH_AD
YAW_AD
VST_C_RESET
V_LIGHT_PWM
XSYS_RST
HI_SO
HI_SI
XHI_SCK
XCS_VC
XCS_VC_STAR
VC_F_BUSY
R985 13k :CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E
47k :CCD-TR617E
XX :CCD-TRV57E
130k :CCD-TR717E/TR918E/TRV67E/TRV87E
R986 22k :CCD-TR918E/TRV87E
47k :CCD-TR717E/TRV67E
13k :CCD-TRV57E
130k :CCD-TR617E
XX :CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E
R988 22k :CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
130k :CCD-TRV37E/TRV47E/TRV48E/TRV67E/TRV87E
47k :CCD-TRV57E
R989 130k :CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/TRV57E
13k :CCD-TRV37E/TRV47E/TRV48E/TRV67E/TRV87E
TR MODEL : CCD-TR317E/TR417E/TR427E/TR517E/TR617E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
PHOTO MODE MODEL : CCD-TR918E/TRV87E
16

SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷▷	
Drum servo (speed and phase)		▷▷▷	
Capstan speed servo		▷	
Capstan phase servo			
Capstan servo (speed and phase)		▷»	
Ref.signal			

MODE CONTROL
VC-234 (9/13)

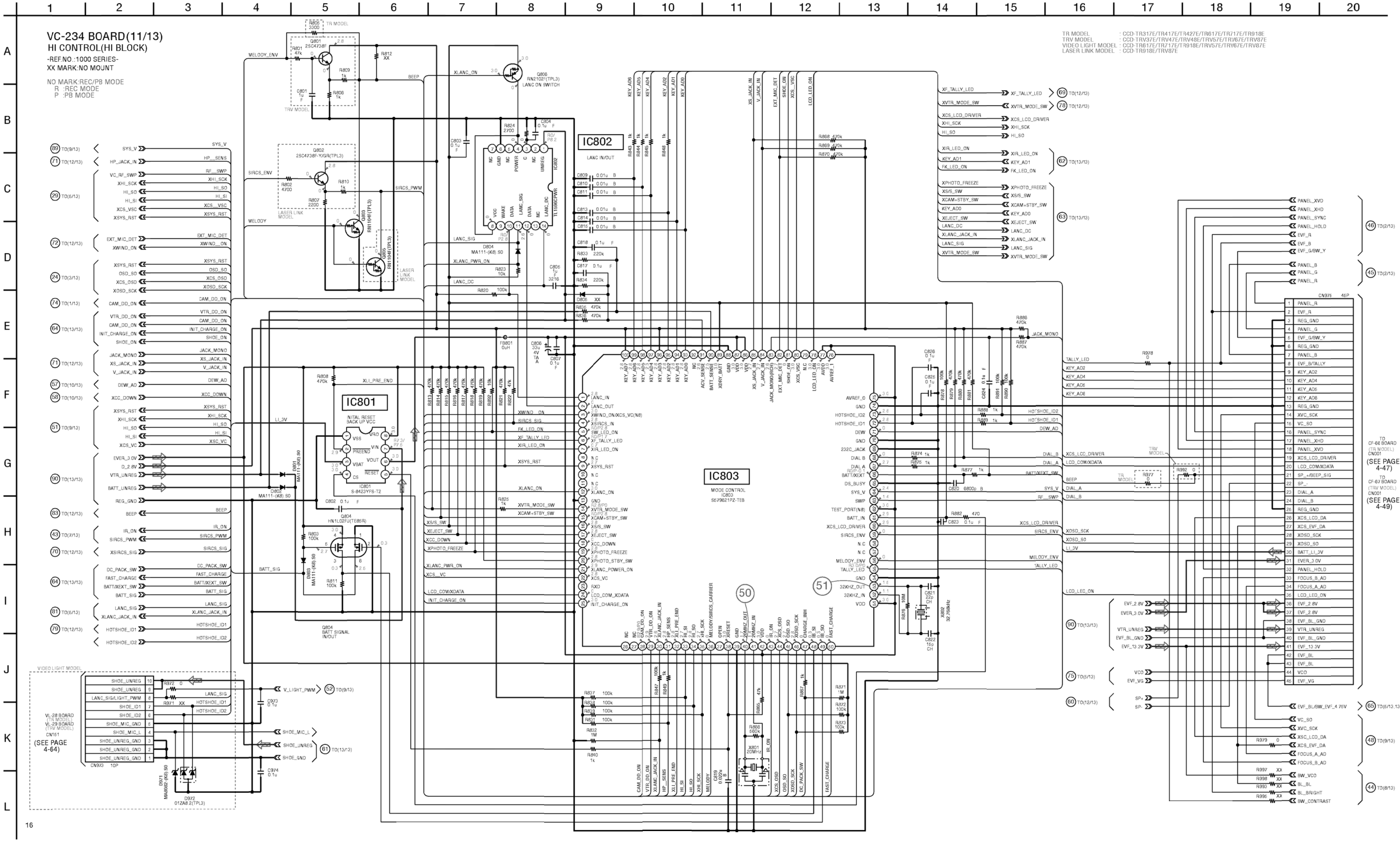
For Schematic Diagram
- Refer to page 4-35 for printed wiring board.
- Refer to page 4-89 for waveforms.
- Refer to page 4-23 for FP-249, FP-356, FP-355 flexible board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I J K
VC-234 BOARD(10/13)
SERVO (SB BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
B201 MECHA DECK
FP-220 FLEXIBLE
FP-356 FLEXIBLE
FP-355 FLEXIBLE
FP-249 FLEXIBLE
S901 MODE SWITCH
M903 LOADING MOTOR
M901 DRUM MOTOR
M902 CAPSTAN MOTOR
CAPSTAN MOTOR DRIVE IC
HALL SENSOR
DEW SENSOR
Q001 TAPE TOP DETECT
Q002 TAPE END DETECT
D001 TAPE LED
S001 Hi8MP ME/MP REC PROOF
S002 CC LOCK
H001 S REEL DETECT
H002 T REEL DETECT
CN974 8P
CN976 10P
CN978 12P
CN979 15P
IC401
DRUM DRIVE
LD DRIVE
REEL FG
DRUM FG/PG
WAVE SHAPER
IC401
Q401 2SC4738F-Y
Q401 TAPE LED DRIVE
D401 MA3X0210100SO
45 46 47 48 49
56 TO(8/13)
57 TO(11/13)
54 TO(9/13)
90 TO(13/13)
53 TO(9/13)
58 TO(11/13)
55 TO(13/13)
VTR_UNREG
MT_4.75V
MT_GND
D_2.8V
REG_GND
UNLOAD
LOAD
LM_LIM_ON
LM_LIM_DET
TAPE_END
TAPE_TOP
TAPE_LED_ON
TREEL_FG
SREEL_FG
XREEL_HALL_ON
DRUM_PWM
HI8_MP_SW
XREC_PROF_SW
CAP_PWM
ME_SW
XCC_DOWN
DRUM_ERROR
CAP_ERROR
CAP_VS
DRUM_VS
CFG_DUTY
DEW_AD
CAP_ON
CAP_FWD
CAP_FG
DRUM_FG
DRUM_PG
DRUM_ON
DRUM_START
MSW_C
MSW_B
MSW_A
16

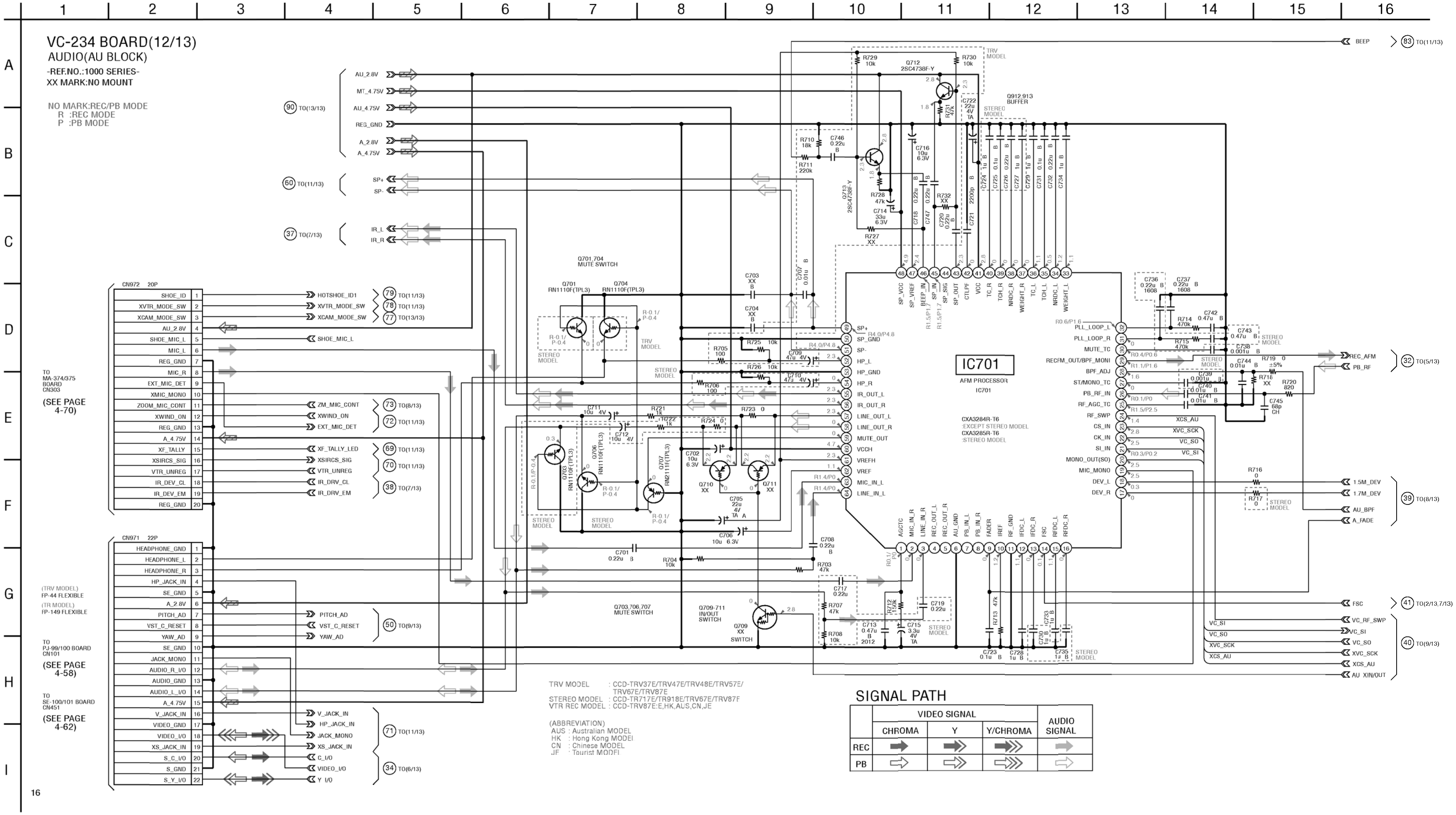
SIGNAL PATH

	REC	REC/PB	PB
Drum speed servo		▷	
Drum phase servo		▷	
Drum servo (speed and phase)		▷▷	
Capstan speed servo		⇨	
Capstan phase servo		⇨›	
Capstan servo (speed and phase)		⇨››	

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.
- Refer to page 4-89 for waveforms.


VC-234 BOARD(11/13)
HI CONTROL(HI BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
VIDEO LIGHT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E
LASER LINK MODEL : CCD-TR918E/TRV87E
IC801
INITIAL RESET BACK UP VCC
IC801 S-8423YFS-T2
IC802
LANC IN/OUT
IC803
MODE CONTROL IC803 S6708621PZ-TEB
Q801 2SC4738F
Q802 2SC4738F-Y,GR(TPL3)
Q803
Q805
Q806 RN2102(TPL3) LANC ON SWITCH
Q804 HN1L02FU(TE85R)
Q804 BATT SIGNAL IN/OUT
D804 MA111-(K8).S0
D805 MA111-(K8).S0
X801 20MHz
X802 32.768kHz
VL-28 BOARD (TR MODEL)
VL-29 BOARD (TRV MODEL)
CN151
(SEE PAGE 4-64)
CN973 10P
VIDEO LIGHT MODEL
D971 MA8082-(K8).S0
D972 01ZA8.2(TPL3)
CN975 46P
TO CF-68 BOARD (TR MODEL) CN001
(SEE PAGE 4-47)
TO CF-67 BOARD (TRV MODEL) CN001
(SEE PAGE 4-49)
(50)
(51)
16

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
A B C D E F G H I
VC-234 BOARD(12/13)
AUDIO(AU BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
IC701
AFM PROCESSOR
CXA3284R-T6 :EXCEPT STEREO MODEL
CXA3285R-T6 :STEREO MODEL
CN972 20P
CN971 22P
TO MA-374/375 BOARD CN303 (SEE PAGE 4-70)
(TRV MODEL) FP-44 FLEXIBLE
(TR MODEL) FP-149 FLEXIBLE
TO PJ-99/100 BOARD CN101 (SEE PAGE 4-58)
TO SE-100/101 BOARD CN451 (SEE PAGE 4-62)
Q701,704 MUTE SWITCH
Q703,706,707 MUTE SWITCH
Q709-711 IN/OUT SWITCH
Q712 2SC4738F-Y
Q713 2SC4738F-Y
Q912,913 BUFFER
STEREO MODEL
TRV MODEL
BEEP
REC_AFM
PB_RF
FSC
VC_RF_SWP
VC_SI
VC_SO
XVC_SCK
XCS_AU
AU_XIN/OUT
1.5M_DEV
1.7M_DEV
AU_BPF
A_FADE
16

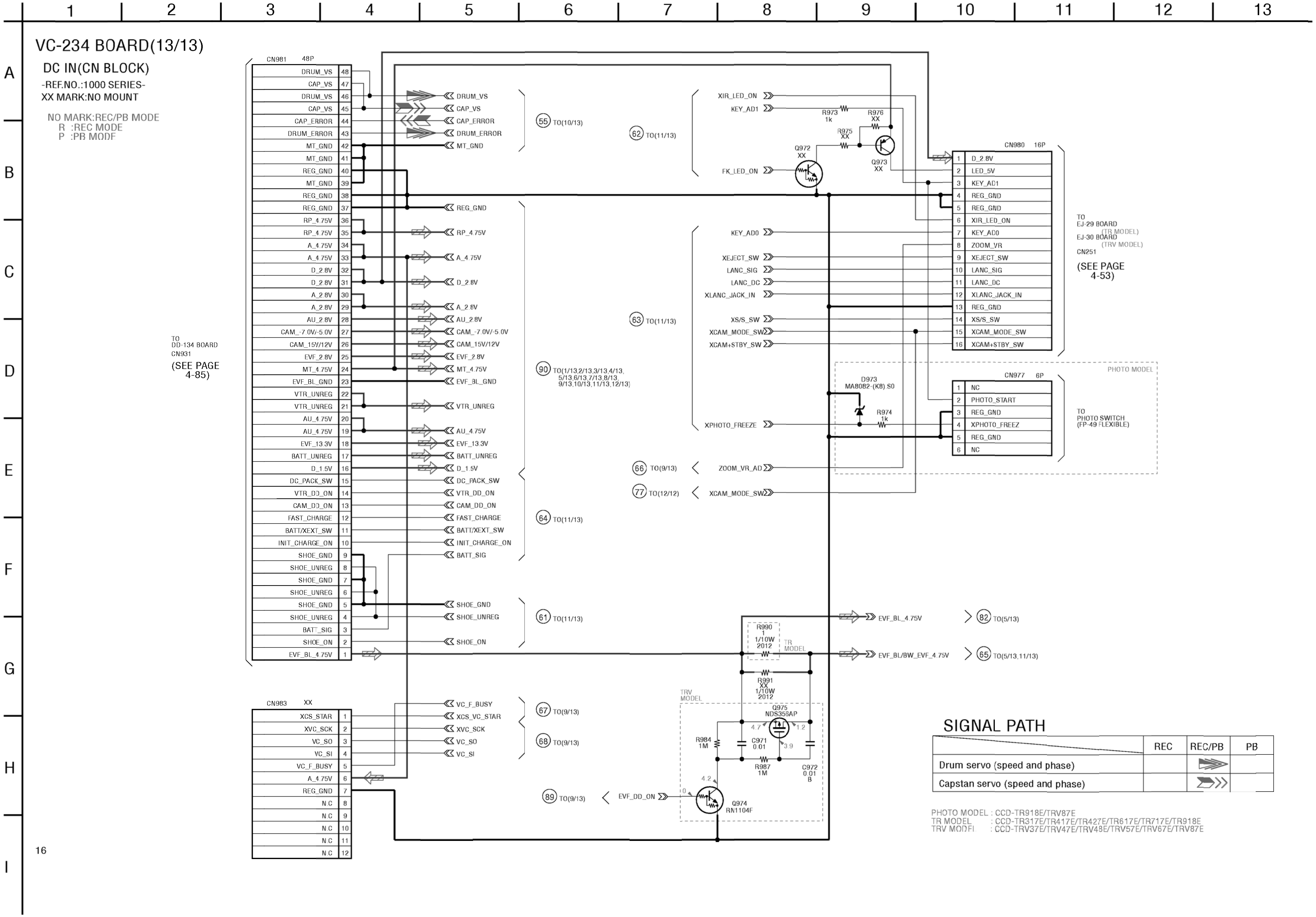
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
STEREO MODEL : CCD-TR717E/TR918E/TRV67E/TRV87E
VTR REC MODEL : CCD-TRV87E:E,HK,AUS,CN,JE

(ABBREVIATION)
AUS : Australian MODEL
HK : Hong Kong MODEL
CN : Chinese MODEL
JE : Tourist MODEL

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡»	➡»»	➡
PB	⇨	⇨»	⇨»»	⇨

For Schematic Diagram
- Refer to page 4-35 for printed wiring board.


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
VC-234 BOARD(13/13)
DC IN(CN BLOCK)
-REF.NO.:1000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
TO
DD-134 BOARD
CN931
(SEE PAGE
4-85)
CN981 48P
DRUM_VS 48
CAP_VS 47
DRUM_VS 46
CAP_VS 45
CAP_ERROR 44
DRUM_ERROR 43
MT_GND 42
MT_GND 41
REG_GND 40
MT_GND 39
REG_GND 38
REG_GND 37
RP_4.75V 36
RP_4.75V 35
A_4.75V 34
A_4.75V 33
D_2.8V 32
D_2.8V 31
A_2.8V 30
A_2.8V 29
AU_2.8V 28
CAM_-7.0V/-5.0V 27
CAM_15V/12V 26
EVF_2.8V 25
MT_4.75V 24
EVF_BL_GND 23
VTR_UNREG 22
VTR_UNREG 21
AU_4.75V 20
AU_4.75V 19
EVF_13.3V 18
BATT_UNREG 17
D_1.5V 16
DC_PACK_SW 15
VTR_DD_ON 14
CAM_DD_ON 13
FAST_CHARGE 12
BATT/XEXT_SW 11
INIT_CHARGE_ON 10
SHOE_GND 9
SHOE_UNREG 8
SHOE_GND 7
SHOE_UNREG 6
SHOE_GND 5
SHOE_UNREG 4
BATT_SIG 3
SHOE_ON 2
EVF_BL_4.75V 1
DRUM_VS
CAP_VS
CAP_ERROR
DRUM_ERROR
MT_GND
(55) TO(10/13)
REG_GND
RP_4.75V
A_4.75V
D_2.8V
A_2.8V
AU_2.8V
CAM_-7.0V/-5.0V
CAM_15V/12V
EVF_2.8V
MT_4.75V
EVF_BL_GND
VTR_UNREG
AU_4.75V
EVF_13.3V
BATT_UNREG
D_1.5V
(90) TO(1/13,2/13,3/13,4/13,
5/13,6/13,7/13,8/13,
9/13,10/13,11/13,12/13)
DC_PACK_SW
VTR_DD_ON
CAM_DD_ON
FAST_CHARGE
BATT/XEXT_SW
INIT_CHARGE_ON
BATT_SIG
(64) TO(11/13)
SHOE_GND
SHOE_UNREG
SHOE_ON
(61) TO(11/13)
CN983 XX
XCS_STAR 1
XVC_SCK 2
VC_SO 3
VC_SI 4
VC_F_BUSY 5
A_4.75V 6
REG_GND 7
N.C 8
N.C 9
N.C 10
N.C 11
N.C 12
VC_F_BUSY
XCS_VC_STAR
XVC_SCK
VC_SO
VC_SI
(67) TO(9/13)
(68) TO(9/13)
(89) TO(9/13)
EVF_DD_ON
16
(62) TO(11/13)
XIR_LED_ON
KEY_AD1
R973 1k
R976 XX
R975 XX
Q972 XX
Q973 XX
FK_LED_ON
(63) TO(11/13)
KEY_AD0
XEJECT_SW
LANC_SIG
LANC_DC
XLANC_JACK_IN
XS/S_SW
XCAM_MODE_SW
XCAM+STBY_SW
XPHOTO_FREEZE
(66) TO(9/13)
ZOOM_VR_AD
(77) TO(12/12)
XCAM_MODE_SW
CN980 16P
1 D_2.8V
2 LED_5V
3 KEY_AD1
4 REG_GND
5 REG_GND
6 XIR_LED_ON
7 KEY_AD0
8 ZOOM_VR
9 XEJECT_SW
10 LANC_SIG
11 LANC_DC
12 XLANC_JACK_IN
13 REG_GND
14 XS/S_SW
15 XCAM_MODE_SW
16 XCAM+STBY_SW
TO
EJ-29 BOARD
(TR MODEL)
EJ-30 BOARD
(TRV MODEL)
CN251
(SEE PAGE
4-53)
PHOTO MODEL
D973
MA8082-(K8).S0
R974 1k
CN977 6P
1 NC
2 PHOTO_START
3 REG_GND
4 XPHOTO_FREEZ
5 REG_GND
6 NC
TO
PHOTO SWITCH
(FP-49 FLEXIBLE)
EVF_BL_4.75V
(82) TO(5/13)
R990 1 1/10W 2012
TR MODEL
EVF_BL/BW_EVF_4.75V
(65) TO(5/13,11/13)
R991 XX 1/10W 2012
TRV MODEL
Q975 NDS356AP
4.7
1.2
3.9
R984 1M
C971 0.01
R987 1M
C972 0.01 B
4.2
0
Q974 RN1104F

SIGNAL PATH

	REC	REC/PB	PB
Drum servo (speed and phase)		⋙	
Capstan servo (speed and phase)		⋙	

PHOTO MODEL : CCD-TR918E/TRV87E
TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

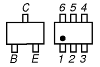
VC-234 (CAMERA, Y/C PROCESSOR, FOCUS/ZOOM MOTOR DRIVE, REC/PB AMP, LINE IN/OUT, MODE CONTROL, SERVO, HI CONTROL, AUDIO) PRINTED WIRING BOARD

— Ref. No. VC-234 Board; 1,000 Series —

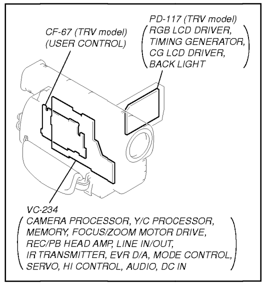
For printed wiring board

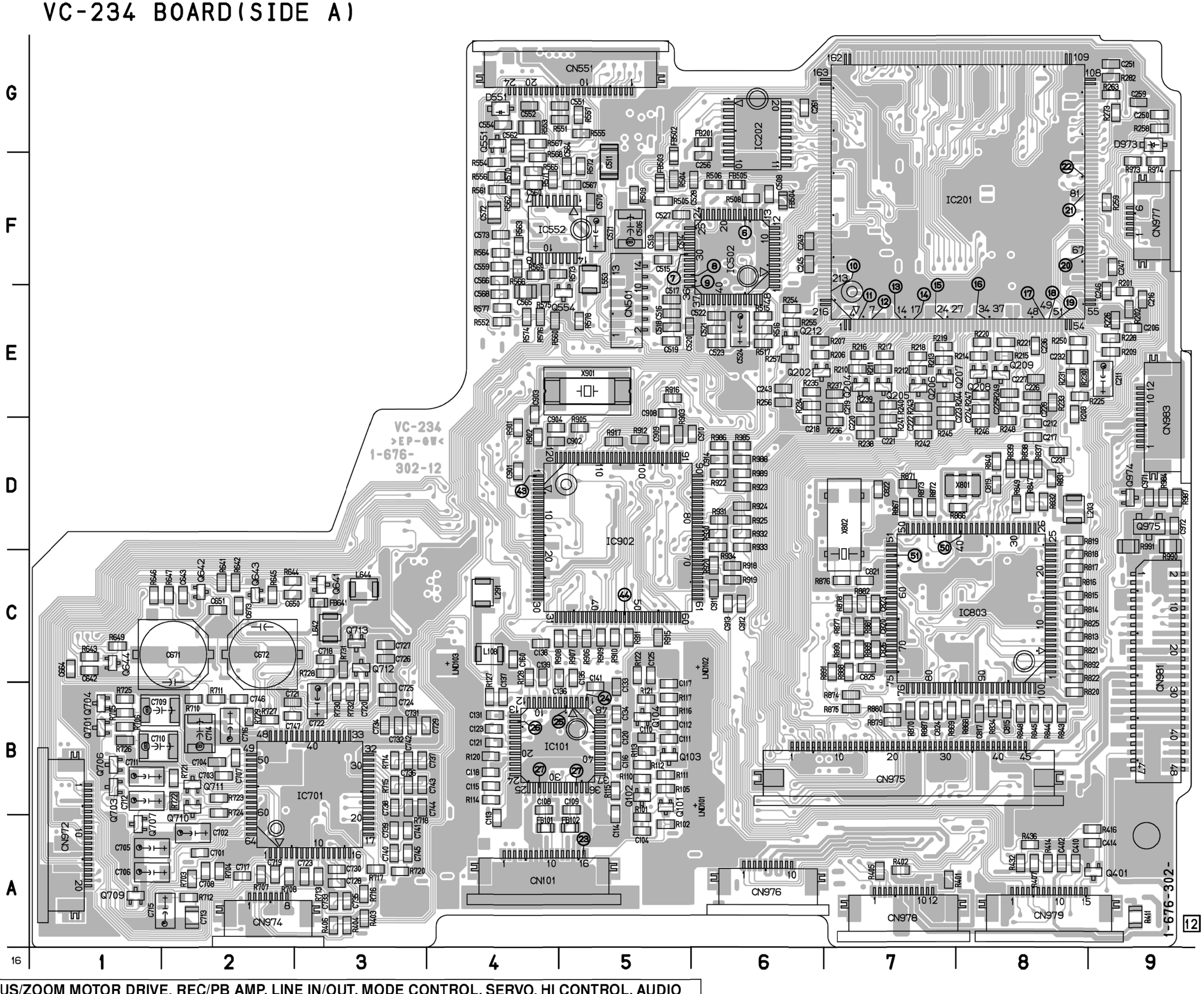
- Refer to page 4-91, 92 for location.
- This board is six-layer print board. However, the patterns of layers two to five have not been included in the diagram.
- Chip parts

Transistor

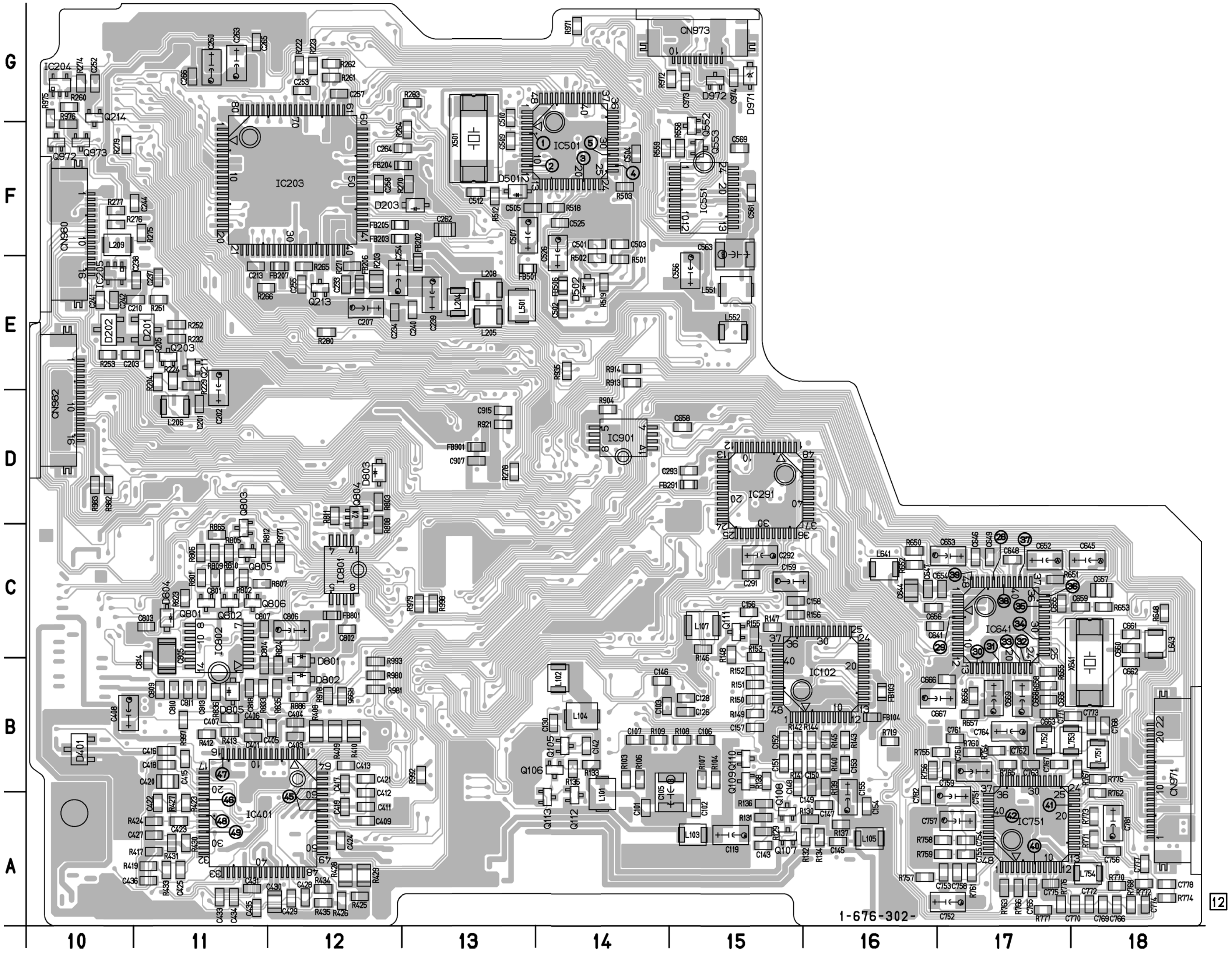


There are few cases that the part printed on this diagram isn't mounted in this model.


PD-117 (TRV model)
RGB LCD DRIVER, TIMING GENERATOR, CG LCD DRIVER, BACK LIGHT
CF-67 (TRV model)
(USER CONTROL)
VC-234
CAMERA PROCESSOR, Y/C PROCESSOR, MEMORY, FOCUS/ZOOM MOTOR DRIVE, REC/PB HEAD AMP, LINE IN/OUT, IR TRANSMITTER, EVR D/A, MODE CONTROL, SERVO, HI CONTROL, AUDIO, DC IN


VC-234 BOARD(SIDE A)
G
F
E
D
C
B
A
16
1
2
3
4
5
6
7
8
9
CN551
IC202
IC201
IC552
IC502
CN501
CN977
X901
VC-234
>EP-6W<
1-676-302-12
IC902
X801
X802
IC803
CN983
CN981
CN975
C671
C672
IC701
IC101
CN972
CN974
CN101
CN976
CN978
CN979
Q401
1-676-302-
12

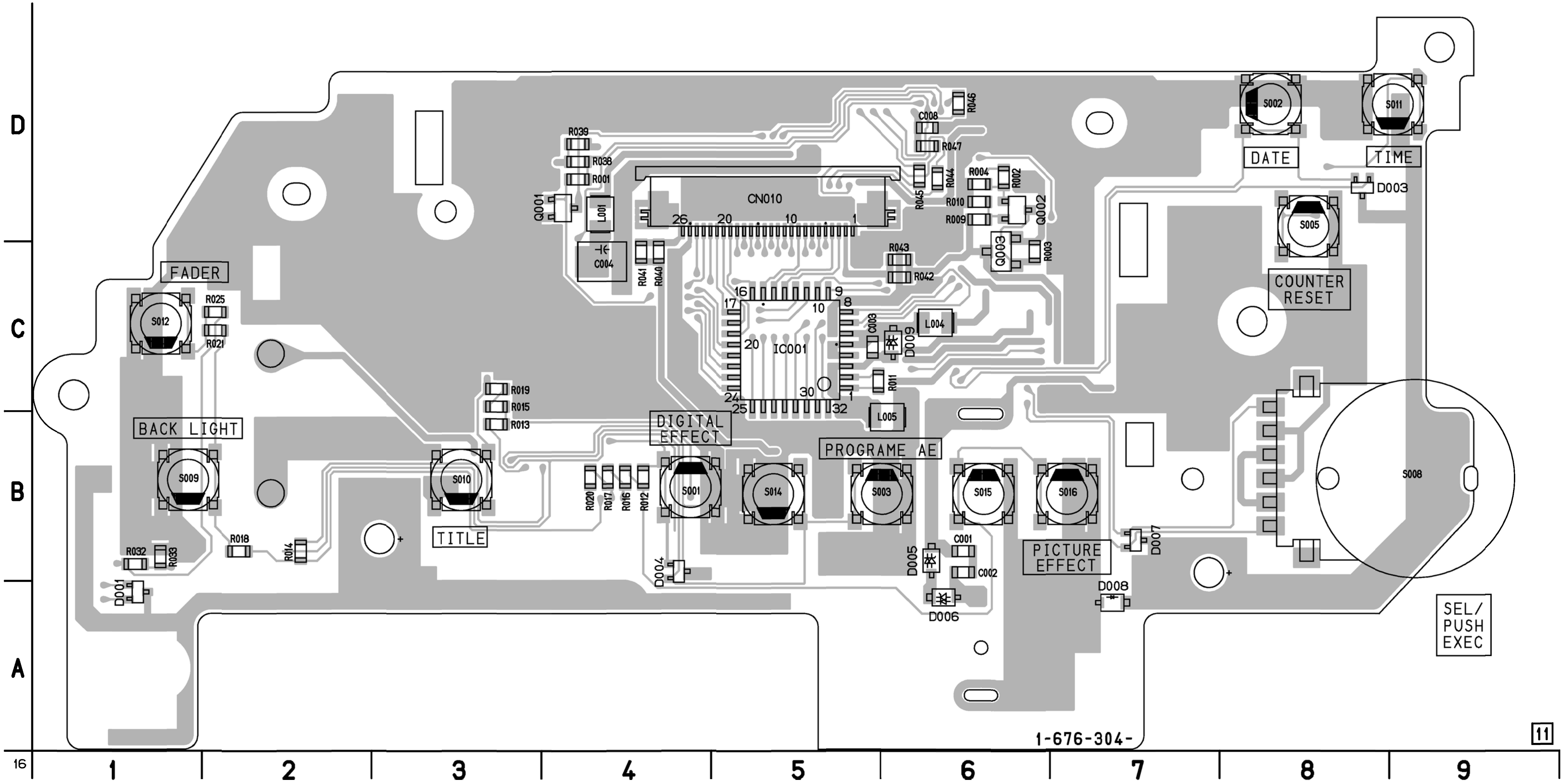
VC-234 BOARD(SIDE B)


G
F
E
D
C
B
A
10
11
12
13
14
15
16
17
18
IC204
IC203
IC205
IC501
IC551
IC901
IC291
IC801
IC802
IC401
IC102
IC641
IC751
CN973
CN980
CN962
CN971
X501
X641
1-676-302-
12

CF-66 (USER CONTROL) PRINTED WIRING BOARD

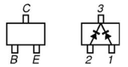
— Ref. No. CF-66 Board; 3,000 Series —

CF-66 BOARD(SIDE A) (TR MODEL)

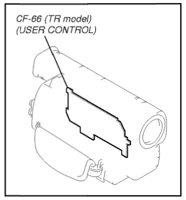

D
C
B
A
1
2
3
4
5
6
7
8
9
16
FADER
BACK LIGHT
TITLE
DIGITAL EFFECT
PROGRAME AE
PICTURE EFFECT
DATE
TIME
COUNTER RESET
SEL/ PUSH EXEC
CN010
IC001
S001
S002
S003
S005
S008
S009
S010
S011
S012
S014
S015
S016
Q001
Q002
Q003
L001
L004
L005
C001
C002
C003
C004
C008
D001
D003
D004
D005
D006
D007
D008
D009
R001
R002
R003
R004
R009
R010
R011
R012
R013
R014
R015
R016
R017
R018
R019
R020
R021
R025
R032
R033
R038
R039
R040
R041
R042
R043
R044
R045
R046
R047
1-676-304-
11

For printed wiring board
- Refer to page 4-92 for location.
- Chip parts

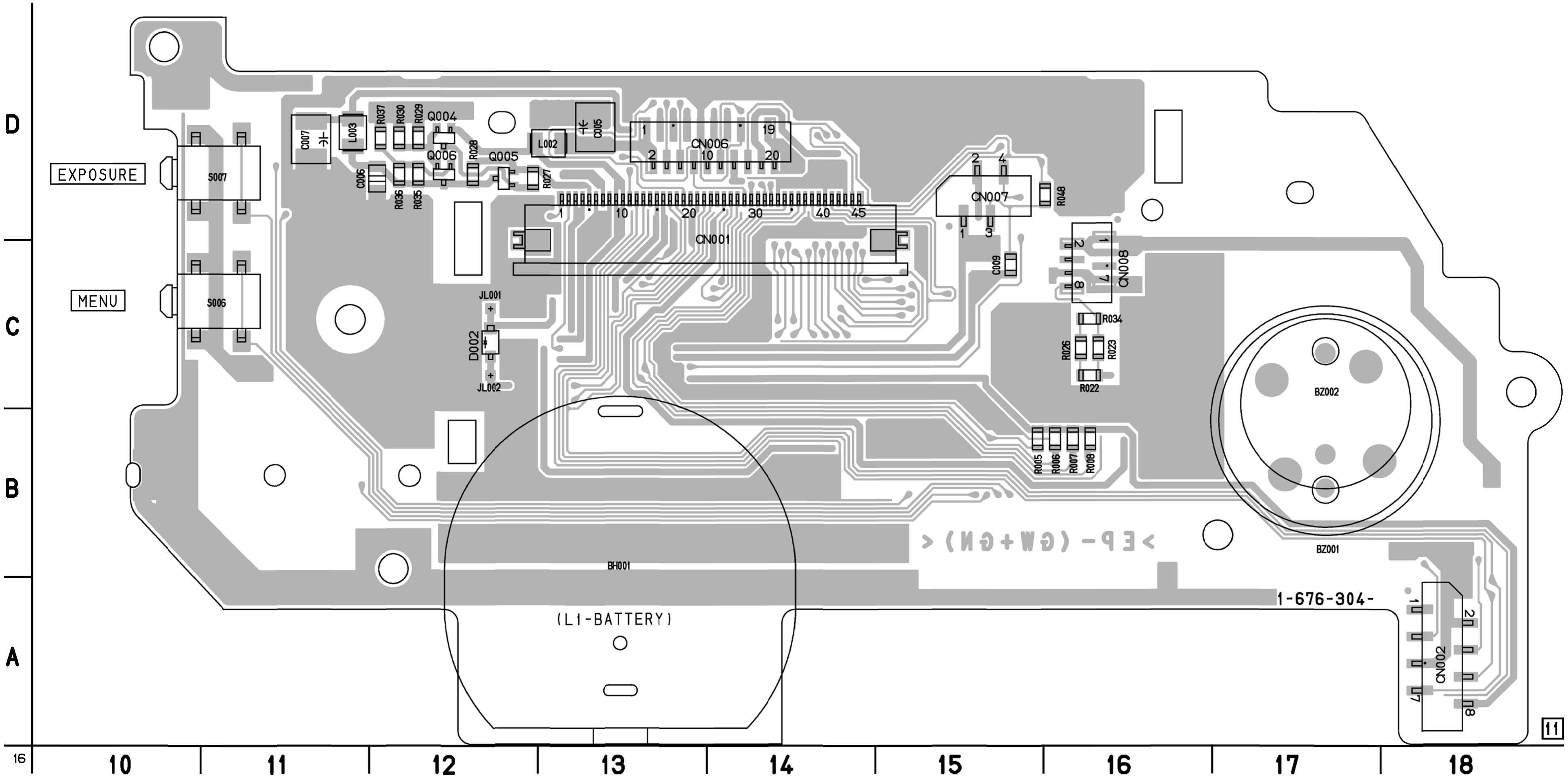
Transistor Diode



There are few cases that the part printed on this diagram isn't mounted in this model.

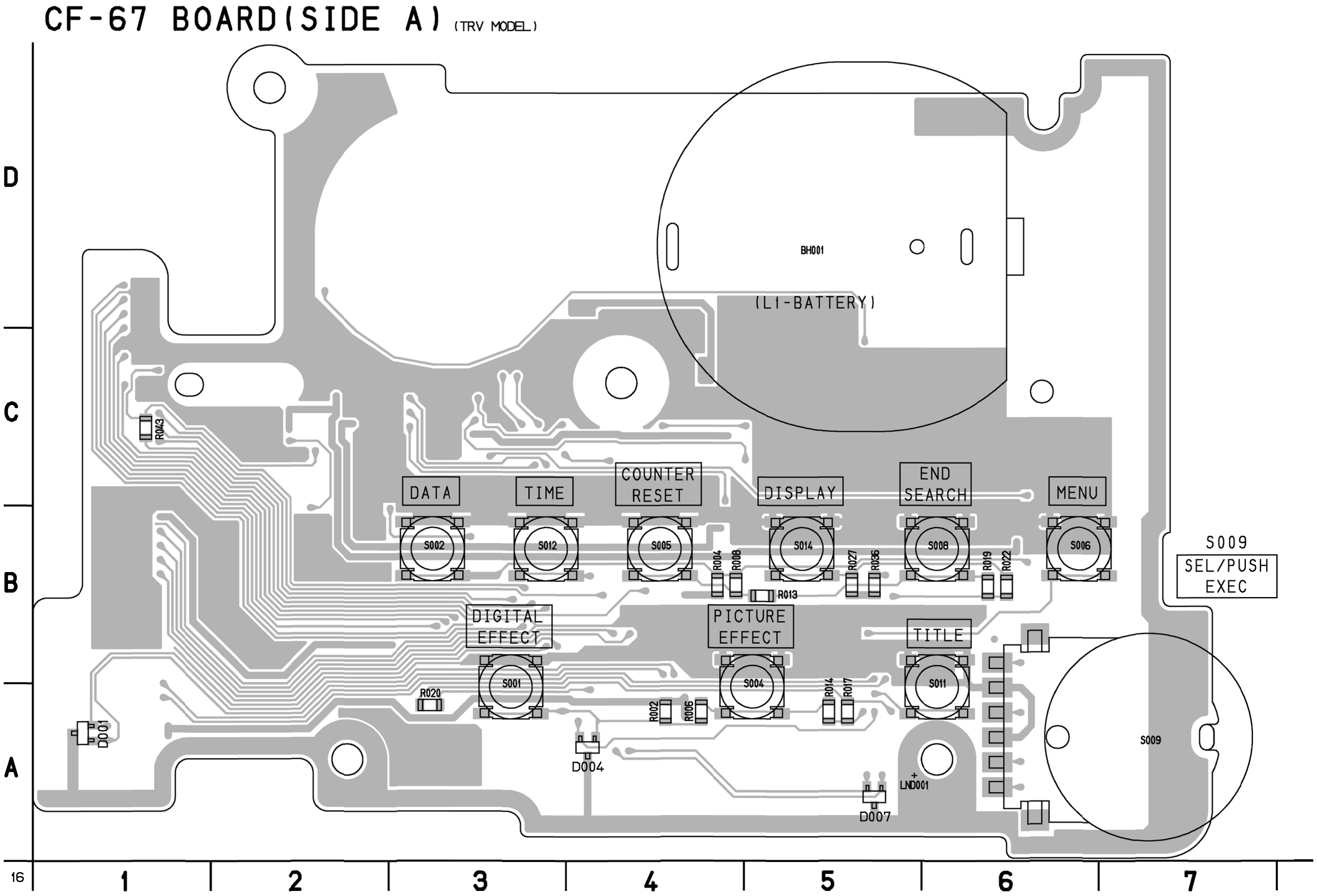

CF-66 (TR model)
(USER CONTROL)

CF-66 BOARD(SIDE B) (TR MODEL)


D
C
B
A
EXPOSURE
MENU
S007
S006
C007
L003
R037
R030
R029
Q004
Q006
R028
Q005
C006
R036
R035
R027
L002
C005
CN006
1
19
2
10
20
CN001
1
10
20
30
40
45
CN007
2
4
1
3
R048
C009
CN008
1
2
7
8
R034
R026
R023
R022
JL001
D002
JL002
R005
R006
R007
R008
BZ002
BZ001
BH001
(L1-BATTERY)
>EP-(GM+GN)<
1-676-304-
CN002
1
2
7
8
11
16
10
11
12
13
14
15
16
17
18

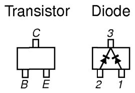
CF-67 (USER CONTROL) PRINTED WIRING BOARD

— Ref. No. CF-67 Board; 4,000 Series —

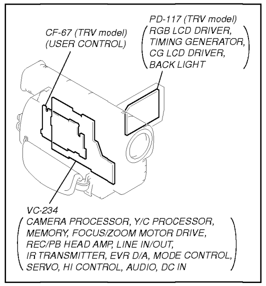

CF-67 BOARD(SIDE A) (TRV MODEL)
D
C
B
A
16
1
2
3
4
5
6
7
BH001
(LI-BATTERY)
R043
DATA
TIME
COUNTER RESET
DISPLAY
END SEARCH
MENU
S002
S012
S005
S014
S008
S006
R004
R008
R013
R027
R036
R019
R022
S009
SEL/PUSH EXEC
DIGITAL EFFECT
PICTURE EFFECT
TITLE
S001
S004
S011
R020
R002
R006
R014
R017
D001
D004
LND001
D007
S009

For printed wiring board

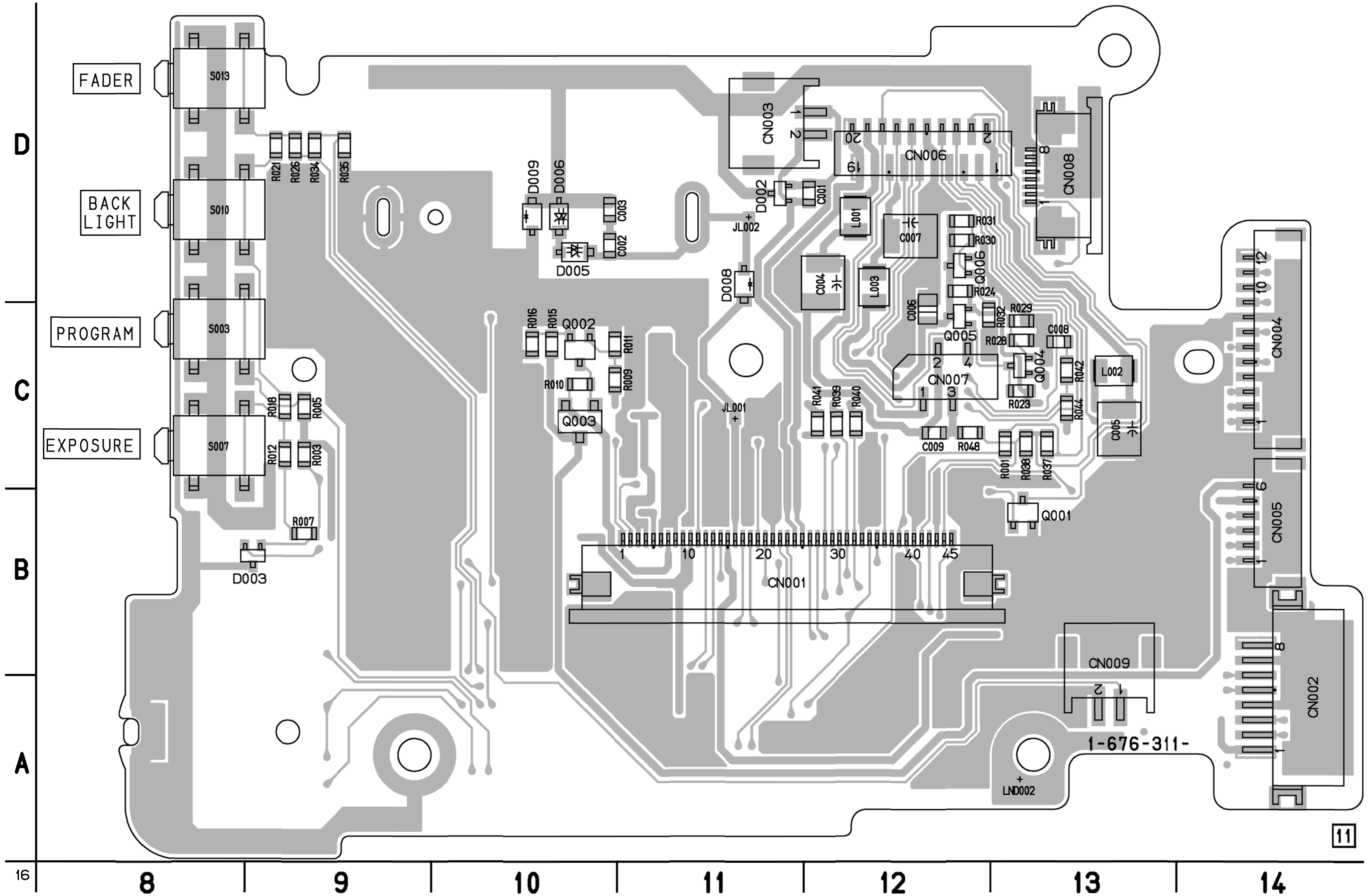
- Refer to page 4-93 for location.
- Chip parts


Transistor
Diode
C
B
E
3
2
1

There are few cases that the part printed on this diagram isn't mounted in this model.

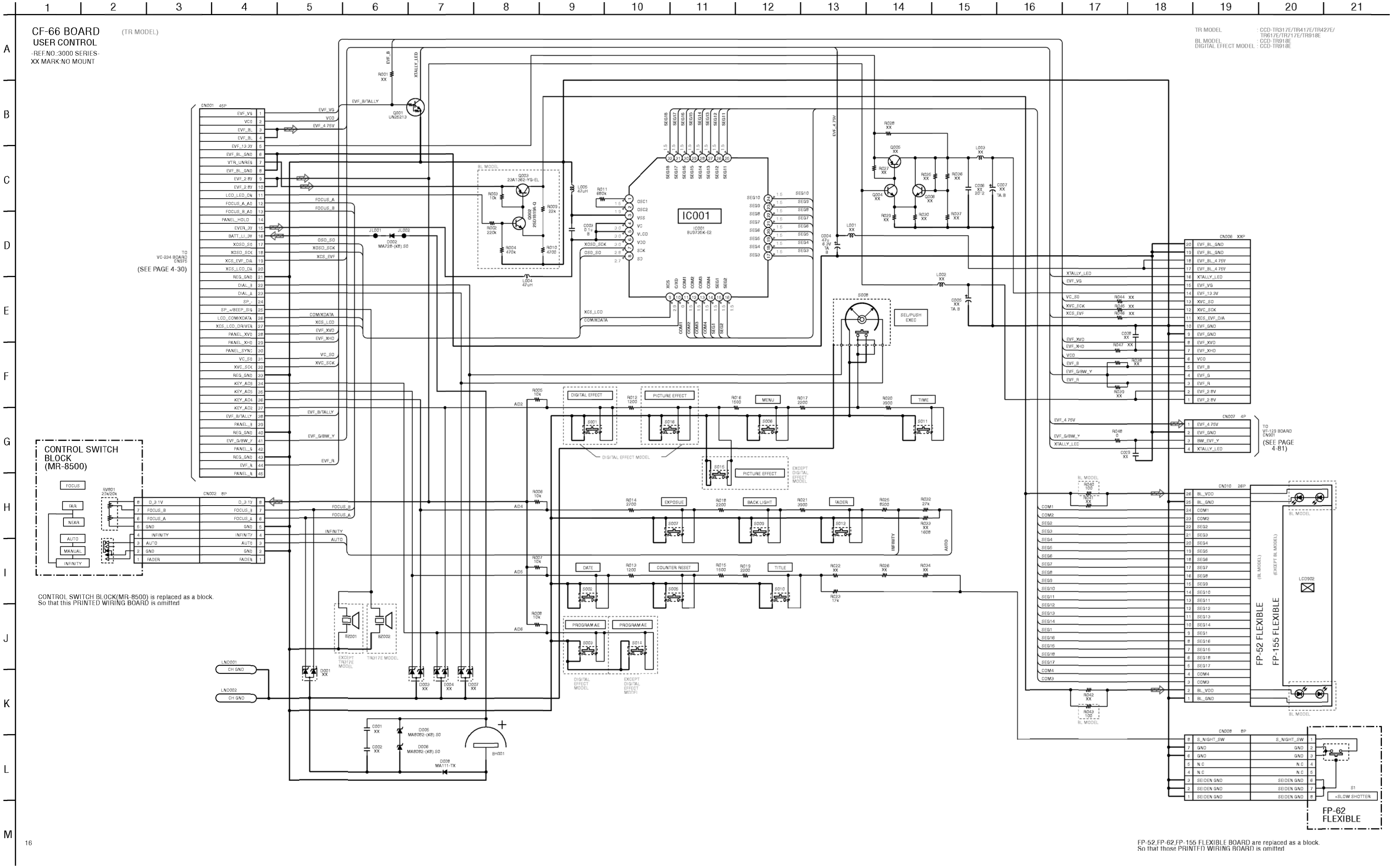

CF-67 (TRV model)
(USER CONTROL)
PD-117 (TRV model)
(RGB LCD DRIVER, TIMING GENERATOR, CG LCD DRIVER, BACK LIGHT)
VC-234
(CAMERA PROCESSOR, Y/C PROCESSOR, MEMORY, FOCUS/ZOOM MOTOR DRIVE, REC/PB HEAD AMP, LINE IN/OUT, IR TRANSMITTER, EVR D/A, MODE CONTROL, SERVO, HI CONTROL, AUDIO, DC IN)

CF-67 BOARD(SIDE B) (TRV MODEL)


FADER
S013
BACK LIGHT
S010
PROGRAM
S003
EXPOSURE
S007
R021
R026
R034
R035
D009
D006
D005
C003
C002
D002
C001
JL002
CN003
CN006
CN008
L001
C007
R031
R030
Q006
R024
C004
L003
D008
C006
R032
R029
Q005
R028
C008
CN007
Q004
R042
L002
R023
R044
C005
CN004
R016
R015
Q002
R011
R009
R010
Q003
JL001
R041
R039
R040
C009
R048
R001
R038
R037
Q001
CN005
R018
R005
R012
R003
R007
D003
CN001
CN009
CN002
1-676-311-
LND002
11
D
C
B
A
8
9
10
11
12
13
14
16

For Schematic Diagram

- Refer to page 4-39 for printed wiring board.

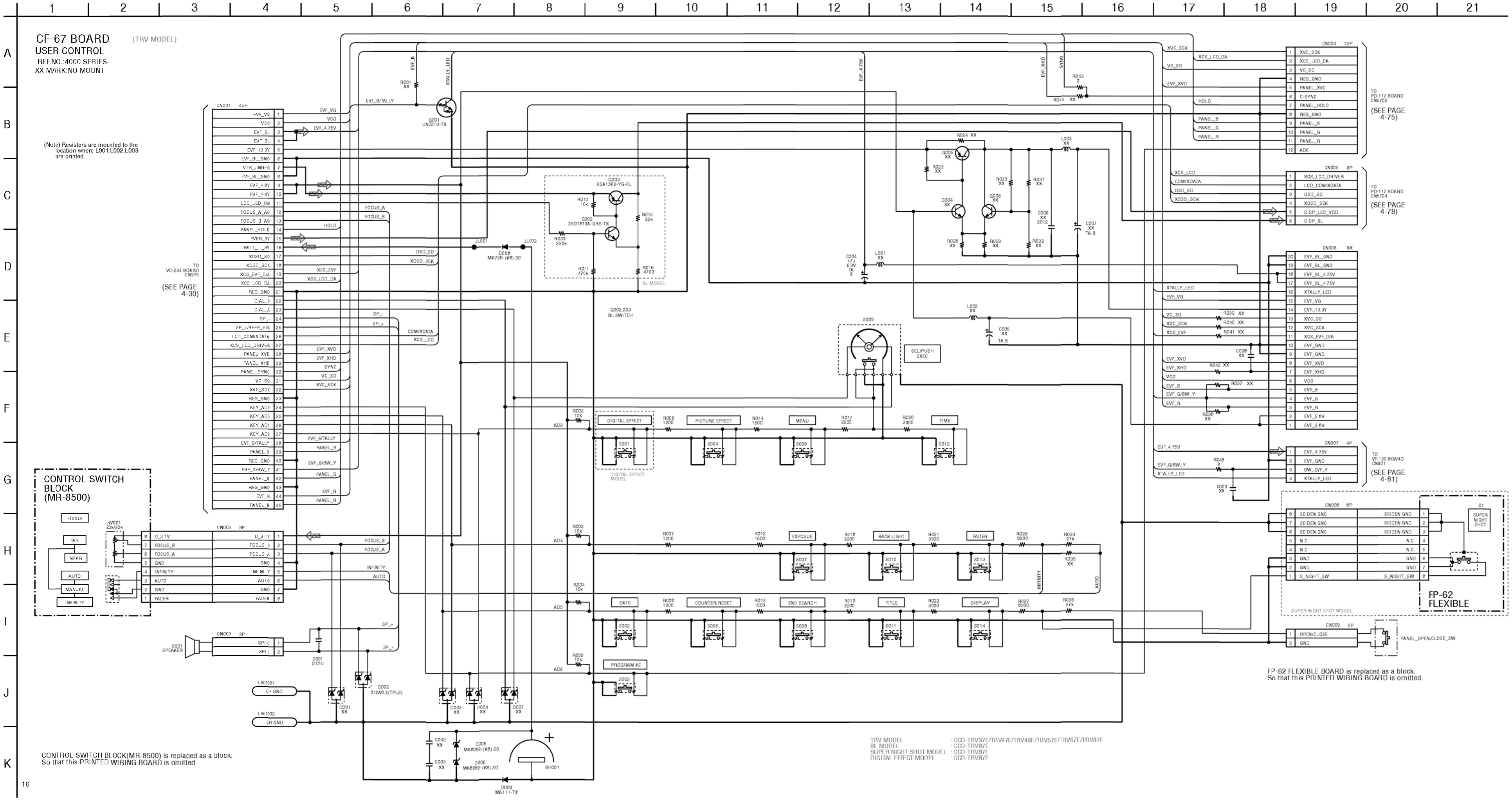

CF-66 BOARD (TR MODEL)
USER CONTROL
-REF.NO.:3000 SERIES-
XX MARK:NO MOUNT
TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
BL MODEL : CCD-TR918E
DIGITAL EFFECT MODEL : CCD-TR918E
CN001 45P
TO VC-224 BOARD CN975 (SEE PAGE 4-30)
IC001 BU9736K-E2
Q001 UN5213
Q002 2SD1819A-Q
Q003 2SA1362-YG-EL
D002 MA728-(K8).SO
CONTROL SWITCH BLOCK (MR-8500)
FOCUS
FAR
NEAR
AUTO
MANUAL
INFINITY
CN002 8P
DIGITAL EFFECT
PICTURE EFFECT
MENU
TIME
SEL/PUSH EXEC
EXPOSURE
BACK LIGHT
FADER
DATE
COUNTER RESET
TITLE
PROGRAM AE
BZ001
BZ002
BH001
CN006 20P
CN007 4P
TO VF-129 BOARD CN901 (SEE PAGE 4-81)
CN010 26P
CN008 8P
FP-52 FLEXIBLE
FP-155 FLEXIBLE
FP-62 FLEXIBLE
LCD902
S1 +SLOW SHUTTER
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
A B C D E F G H I J K L M

CONTROL SWITCH BLOCK(MR-8500) is replaced as a block.
So that this PRINTED WIRING BOARD is omitted.

FP-52,FP-62,FP-155 FLEXIBLE BOARD are replaced as a block.
So that those PRINTED WIRING BOARD is omitted.

For Schematic Diagram

- Refer to page 4-43 for printed wiring board.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
A
B
C
D
E
F
G
H
I
J
K
CF-67 BOARD
(TRV MODEL)
USER CONTROL
-REF.NO.:4000 SERIES-
XX MARK:NO MOUNT
(Note) Resisters are mounted to the location where L001,L002,L003 are printed.
CN001 45P
TO VC-234 BOARD CN370
(SEE PAGE 4-30)
CONTROL SWITCH BLOCK (MR-8500)
FOCUS
FAR
NEAR
AUTO
MANUAL
INFINITY
RV801 22k/20k
CN002 8P
CN003 2P
SP001 SPEAKER
LND001 CH GND
LND002 CH GND
Q001 UN5213-TX
Q002 2SD1819A-QRS-TX
Q003 2SA1362-YG-EL
Q002,003 BL SWITCH
BL MODEL
D008 MA728-(K8).S0
D009 MA111-TX
D002 01ZA8.2(TPL3)
D005 MA8082-(K8).S0
D006 MA8082-(K8).S0
BH001
S009
SEL/PUSH EXEC
DIGITAL EFFECT
DIGITAL EFFECT MODEL
PICTURE EFFECT
MENU
TIME
EXPOSURE
BACK LIGHT
FADER
DATE
COUNTER RESET
END SEARCH
TITLE
DISPLAY
PROGRAM AE
AD2
AD4
AD5
AD6
INFINITY
AUTO
CN004 12P
TO PD-117 BOARD CN5702
(SEE PAGE 4-75)
CN005 6P
TO PD-117 BOARD CN5704
(SEE PAGE 4-78)
CN006 XX
CN007 4P
TO VF-129 BOARD CN901
(SEE PAGE 4-81)
CN008 8P
CN009 2P
PANEL_OPEN/CLOSE_SW
S1 SUPER NIGHT SHOT
SUPER NIGHT SHOT MODEL
FP-62 FLEXIBLE
16

FP-62 FLEXIBLE BOARD is replaced as a block.
So that this PRINTED WIRING BOARD is omitted.

CONTROL SWITCH BLOCK(MR-8500) is replaced as a block.
So that this PRINTED WIRING BOARD is omitted.

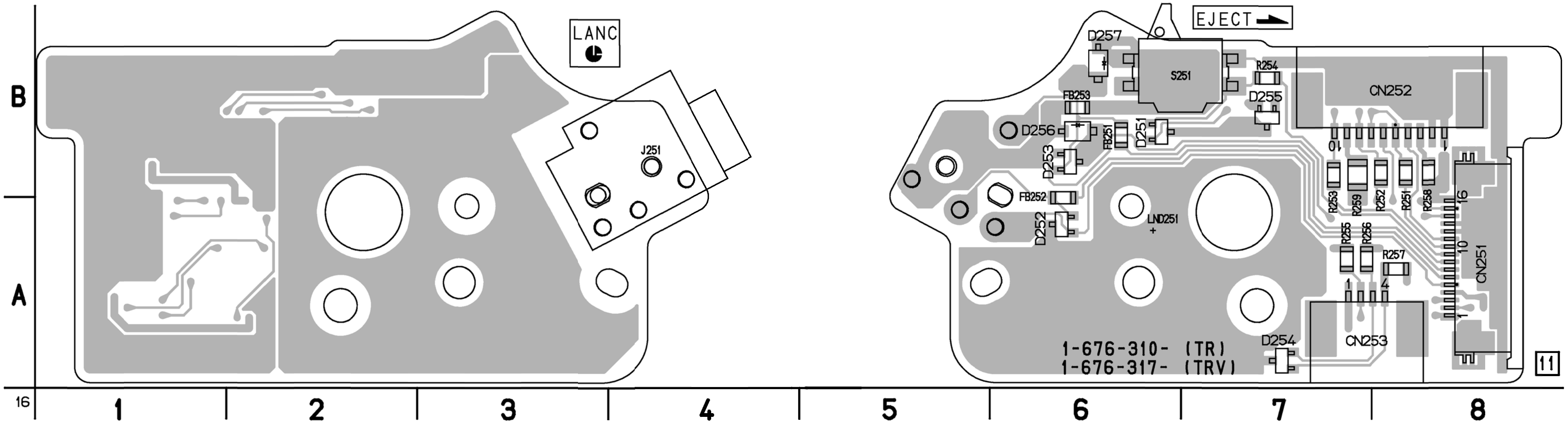
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
BL MODEL : CCD-TRV87E
SUPER NIGHT SHOT MODEL : CCD-TRV87E
DIGITAL EFFECT MODEL : CCD-TRV87E

EJ-29/30 (LANC CONNECTOR), SS-9700 (START/STOP SWITCH) PRINTED WIRING BOARDS

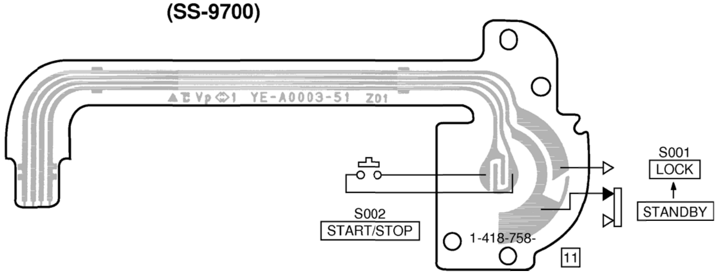
— Ref. No. EJ-29/30 Board; 2,000 Series —

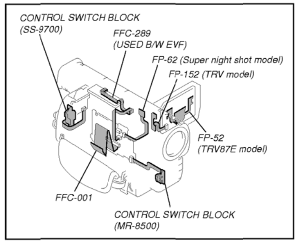
EJ-29 BOARD(SIDE A) (TR MODEL)
EJ-30 BOARD(SIDE A) (TRV MODEL)

EJ-29 BOARD(SIDE B) (TR MODEL)
EJ-30 BOARD(SIDE B) (TRV MODEL)


LANC
B
A
J251
EJECT
D257
S251
R254
D255
CN252
FB253
D256
FB251
D251
D253
FB252
D252
LND251
10
1
R253
R259
R252
R251
R258
16
R255
R256
R257
10
CN251
1
4
D254
CN253
1-676-310- (TR)
1-676-317- (TRV)
11
16
1
2
3
4
5
6
7
8

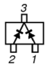
CONTROL SWITCH BLOCK
(SS-9700)


YE-A0003-51 Z01
S001
LOCK
STANDBY
S002
START/STOP
1-418-758-
11

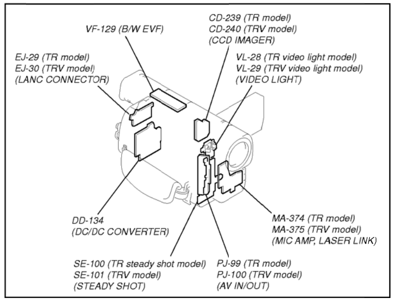

CONTROL SWITCH BLOCK
(SS-9700)
FFC-289
(USED B/W EVF)
FP-62 (Super night shot model)
FP-152 (TRV model)
FP-52
(TRV87E model)
FFC-001
CONTROL SWITCH BLOCK
(MR-8500)

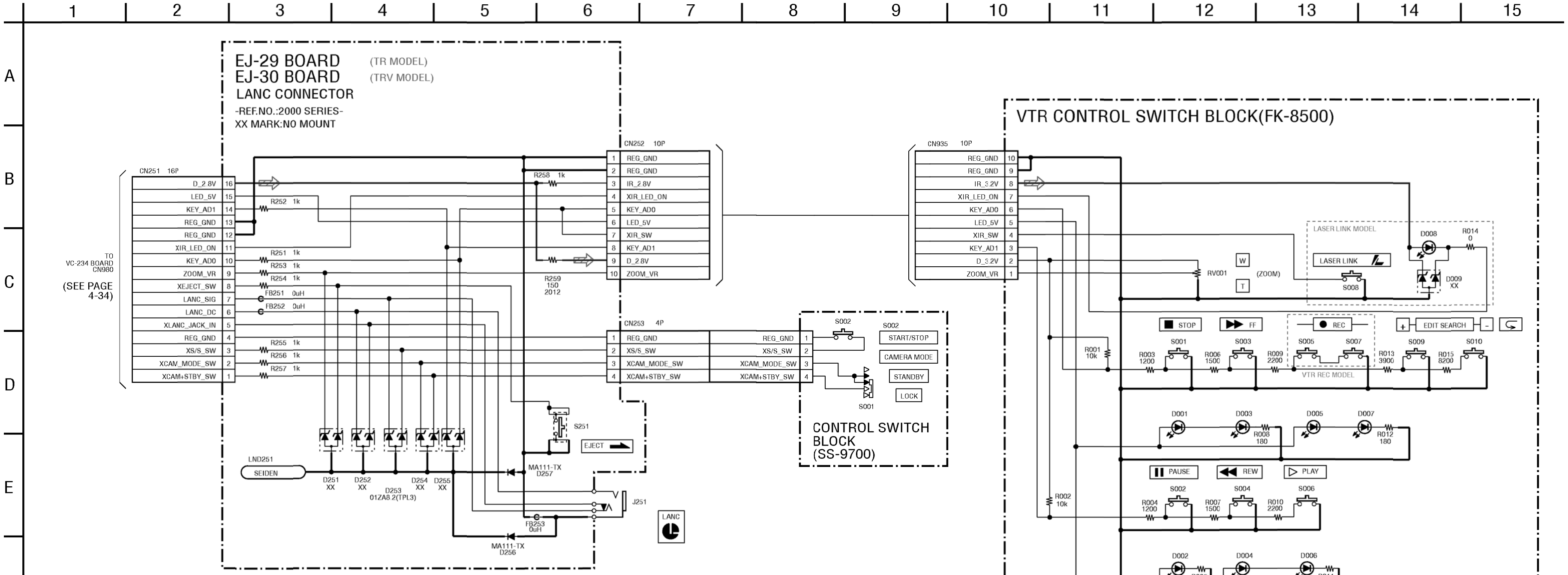
For printed wiring board
- Refer to page 4-93 for location.
- Chip parts

Diode



There are few cases that the part printed on this diagram isn't mounted in this model.


VF-129 (B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-28 (TR video light model)
VL-29 (TRV video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-100 (TR steady shot model)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
EJ-29 BOARD (TR MODEL)
EJ-30 BOARD (TRV MODEL)
LANC CONNECTOR
-REF.NO.:2000 SERIES-
XX MARK:NO MOUNT
TO VC-234 BOARD CN980
(SEE PAGE 4-34)
CN251 16P
D_2.8V 16
LED_5V 15
KEY_AD1 14
REG_GND 13
REG_GND 12
XIR_LED_ON 11
KEY_AD0 10
ZOOM_VR 9
XEJECT_SW 8
LANC_SIG 7
LANC_DC 6
XLANC_JACK_IN 5
REG_GND 4
XS/S_SW 3
XCAM_MODE_SW 2
XCAM+STBY_SW 1
R252 1k
R251 1k
R253 1k
R254 1k
FB251 0uH
FB252 0uH
R255 1k
R256 1k
R257 1k
R258 1k
R259 150 2012
CN252 10P
1 REG_GND
2 REG_GND
3 IR_2.8V
4 XIR_LED_ON
5 KEY_AD0
6 LED_5V
7 XIR_SW
8 KEY_AD1
9 D_2.8V
10 ZOOM_VR
CN253 4P
1 REG_GND
2 XS/S_SW
3 XCAM_MODE_SW
4 XCAM+STBY_SW
S251
EJECT
LND251
SEIDEN
D251 XX
D252 XX
D253 01ZA8.2(TPL3)
D254 XX
D255 XX
MA111-TX D257
MA111-TX D256
FB253 0uH
J251
LANC
REG_GND 1
XS/S_SW 2
XCAM_MODE_SW 3
XCAM+STBY_SW 4
S002
S002
START/STOP
CAMERA MODE
STANDBY
LOCK
S001
CONTROL SWITCH BLOCK (SS-9700)
VTR CONTROL SWITCH BLOCK(FK-8500)
CN935 10P
REG_GND 10
REG_GND 9
IR_3.2V 8
XIR_LED_ON 7
KEY_AD0 6
LED_5V 5
XIR_SW 4
KEY_AD1 3
D_3.2V 2
ZOOM_VR 1
RV001
W
T
(ZOOM)
LASER LINK MODEL
LASER LINK
S008
D008
R014 0
D009 XX
STOP
FF
REC
+
EDIT SEARCH
-
S001
S003
S005
S007
S009
S010
R001 10k
R003 1200
R006 1500
R009 2200
R013 3900
R015 8200
VTR REC MODEL
D001
D003
D005
D007
R008 180
R012 180
PAUSE
REW
PLAY
S002
S004
S006
R002 10k
R004 1200
R007 1500
R010 2200
D002
D004
D006
R005 470
R011 180

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
VTR REC MODEL : CCD-TRV87E:E,HK,AUS,CN,JE
LASER LINK MODEL : CCD-TR918E/TRV87E

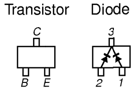
(ABBREVIATION)
AUS : Australian MODEL
HK : Hong Kong MODEL
CN : Chinese MODEL
JE : Tourist MODEL

16

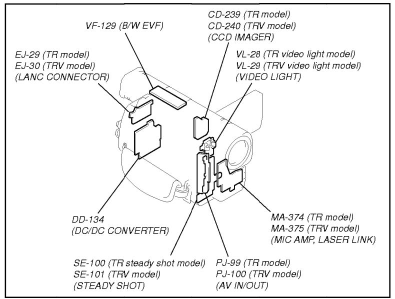
CONTROL SWITCH BLOCK(FK-8500,SS-9700) are replaced as a block,so that this PRINTED WIRING BOARD is omitted.

For printed wiring board

- Refer to page 4-93 for location.
- Chip parts

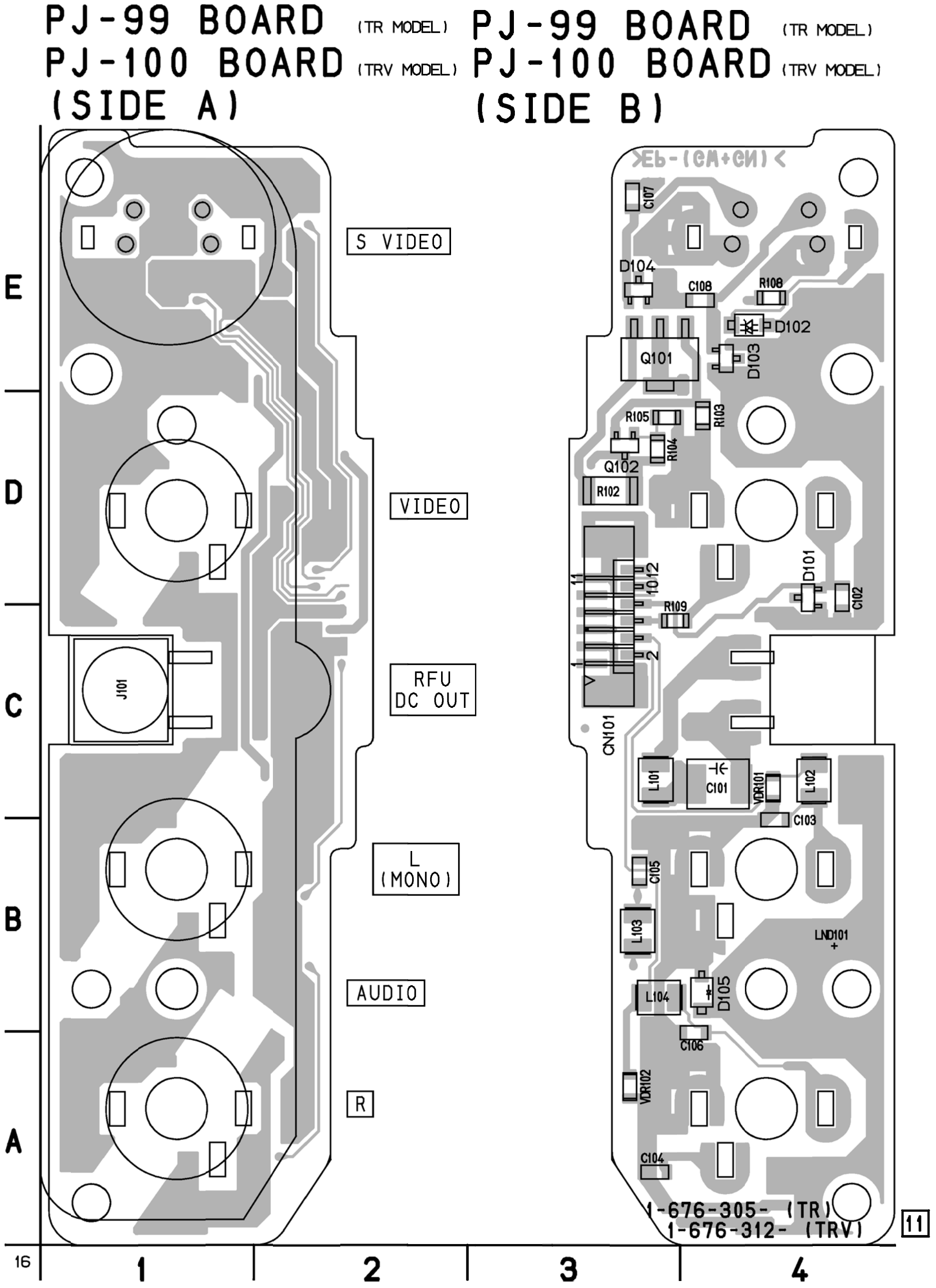

Transistor
C
B
E
Diode
3
2
1

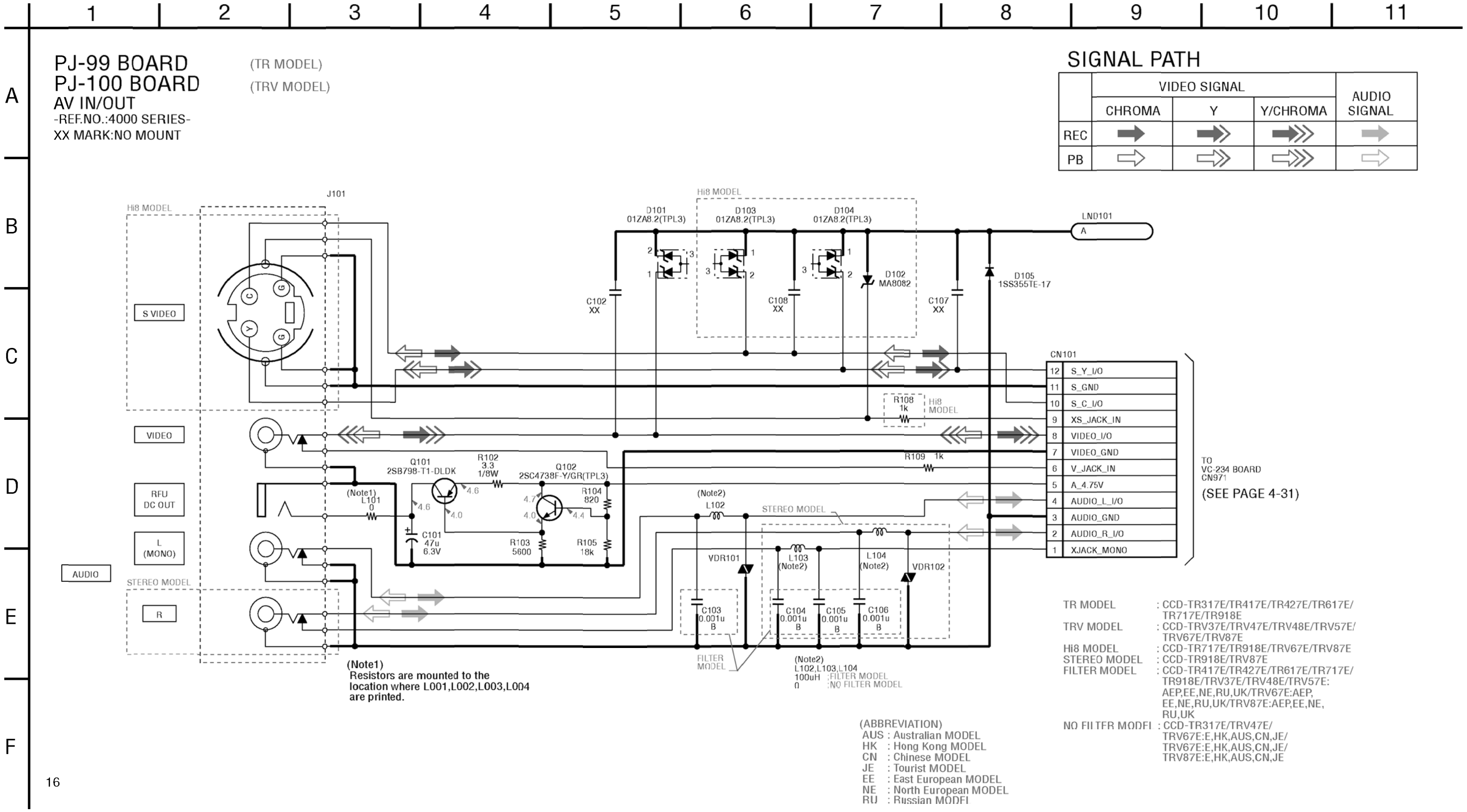
There are few cases that the part printed on this diagram isn't mounted in this model.


VF-129 (B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-28 (TR video light model)
VL-29 (TRV video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-100 (TR steady shot model)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

PJ-99/100 (AV IN/OUT) PRINTED WIRING BOARD

— Ref. No. PJ-99/100 Board; 4,000 Series —


PJ-99 BOARD (TR MODEL)
PJ-100 BOARD (TRV MODEL)
(SIDE A)
PJ-99 BOARD (TR MODEL)
PJ-100 BOARD (TRV MODEL)
(SIDE B)
S VIDEO
VIDEO
RFU
DC OUT
L
(MONO)
AUDIO
R
J101
E
D
C
B
A
1
2
3
4
16
C107
D104
C108
R108
D102
Q101
D103
R105
R103
R104
Q102
R102
CN101
11
1012
R109
1
2
D101
C102
L101
C101
VDR101
L102
C103
C105
L103
LND101
L104
D105
C106
VDR102
C104
1-676-305- (TR)
1-676-312- (TRV)
11


1
2
3
4
5
6
7
8
9
10
11
A
B
C
D
E
F
Hi8 MODEL
J101
S VIDEO
VIDEO
RFU
DC OUT
L
(MONO)
AUDIO
STEREO MODEL
R
Q101
2SB798-T1-DLDK
R102
3.3
1/8W
Q102
2SC4738F-Y/GR(TPL3)
(Note1)
L101
0
4.6
4.6
4.0
4.7
4.0
4.4
R104
820
C101
47u
6.3V
R103
5600
R105
18k
D101
01ZA8.2(TPL3)
Hi8 MODEL
D103
01ZA8.2(TPL3)
D104
01ZA8.2(TPL3)
D102
MA8082
D105
1SS355TE-17
C102
XX
C108
XX
C107
XX
LND101
A
R108
1k
Hi8
MODEL
R109 1k
(Note2)
L102
STEREO MODEL
VDR101
L103
(Note2)
L104
(Note2)
VDR102
C103
0.001u
B
C104
0.001u
B
C105
0.001u
B
C106
0.001u
B
FILTER
MODEL
CN101
12 S_Y_I/O
11 S_GND
10 S_C_I/O
9 XS_JACK_IN
8 VIDEO_I/O
7 VIDEO_GND
6 V_JACK_IN
5 A_4.75V
4 AUDIO_L_I/O
3 AUDIO_GND
2 AUDIO_R_I/O
1 XJACK_MONO
TO
VC-234 BOARD
CN971
16

PJ-99 BOARD (TR MODEL)
PJ-100 BOARD (TRV MODEL)
AV IN/OUT
-REF.NO.:4000 SERIES-
XX MARK:NO MOUNT

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC	➡	➡》	➡》》	➡
PB	⇨	⇨》	⇨》》	⇨

(SEE PAGE 4-31)

(Note1)
Resistors are mounted to the location where L001,L002,L003,L004 are printed.

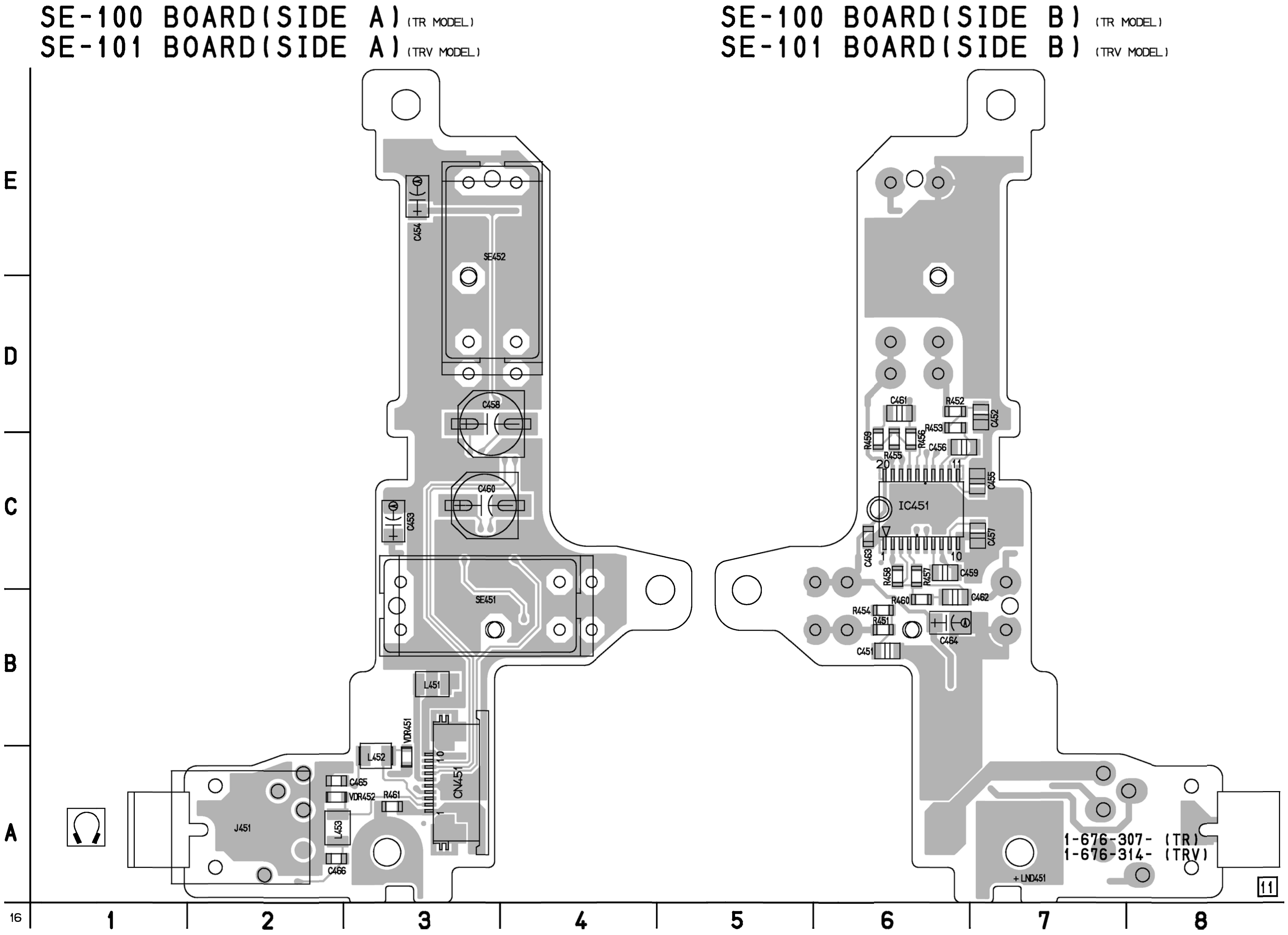
(Note2)
L102,L103,L104
100uH :FILTER MODEL
0 :NO FILTER MODEL

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
Hi8 MODEL : CCD-TR717E/TR918E/TRV67E/TRV87E
STEREO MODEL : CCD-TR918E/TRV87E
FILTER MODEL : CCD-TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/TRV57E: AEP,EE,NE,RU,UK/TRV67E:AEP, EE,NE,RU,UK/TRV87E:AEP,EE,NE, RU,UK
NO FILTER MODEL : CCD-TR317E/TRV47E/ TRV67E:E,HK,AUS,CN,JE/ TRV67E:E,HK,AUS,CN,JE/ TRV87E:E,HK,AUS,CN,JE

(ABBREVIATION)
AUS : Australian MODEL
HK : Hong Kong MODEL
CN : Chinese MODEL
JE : Tourist MODEL
EE : East European MODEL
NE : North European MODEL
RU : Russian MODEL

SE-100/101 (STEADY SHOT) PRINTED WIRING BOARD

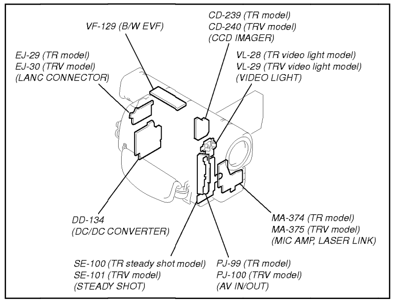
— Ref. No. SE-100/101 Board; 6,000 Series —


SE-100 BOARD(SIDE A) (TR MODEL)
SE-101 BOARD(SIDE A) (TRV MODEL)
SE-100 BOARD(SIDE B) (TR MODEL)
SE-101 BOARD(SIDE B) (TRV MODEL)
E
D
C
B
A
16
1
2
3
4
5
6
7
8
C454
SE452
C458
C460
C453
SE451
L451
VDR451
L452
10
CN451
1
C465
VDR452
R461
L453
J451
C466
C461
R452
C452
R459
R453
R456
R455
C456
20
11
C455
IC451
C463
1
10
C457
R458
R457
C459
R460
C462
R454
R451
C464
C451
+ LND451
1-676-307- (TR)
1-676-314- (TRV)
11

For printed wiring board

- Refer to page 4-93 for location.

There are few cases that the part printed on this diagram isn't mounted in this model.

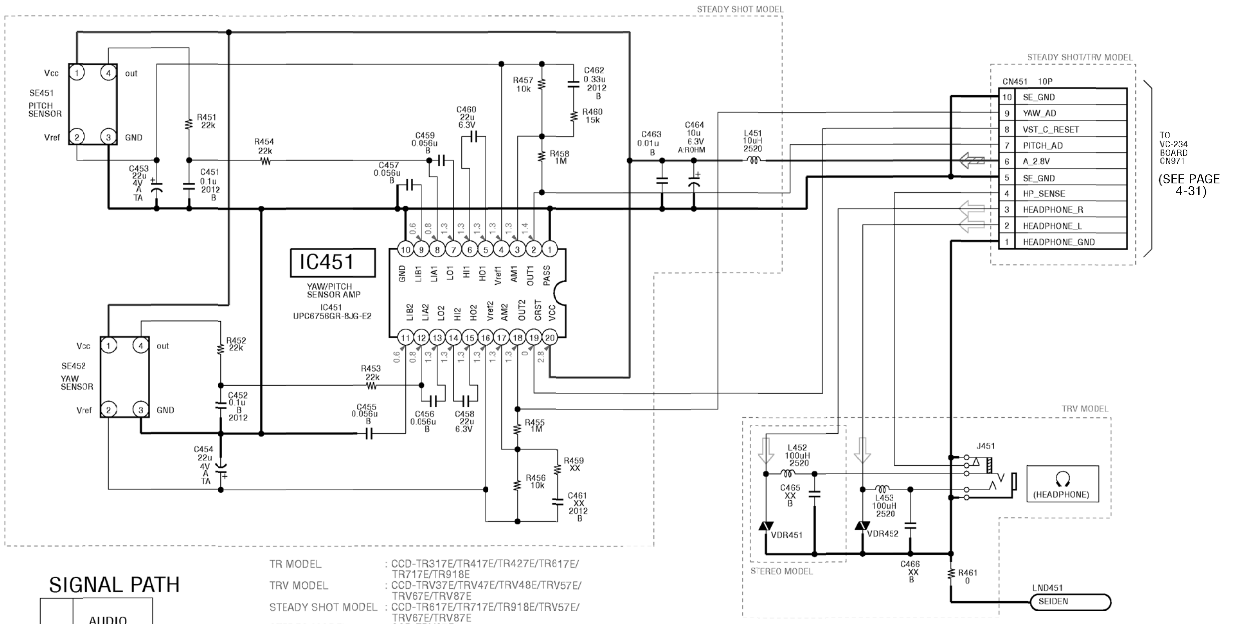

VF-129 (B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-28 (TR video light model)
VL-29 (TRV video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-100 (TR steady shot model)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

SE-100 BOARD (TR MODEL)
SE-101 BOARD (TRV MODEL)

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE

STEADY SHOT

-REF.NO.:6000 SERIES-
XX MARK:NO MOUNT


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
STEADY SHOT MODEL
Vcc
out
SE451
PITCH SENSOR
Vref
GND
R451 22k
C453 22u 4V A TA
C451 0.1u 2012 B
R454 22k
C457 0.056u B
C459 0.056u B
C460 22u 6.3V
R457 10k
C462 0.33u 2012 B
R460 15k
R458 1M
C463 0.01u B
C464 10u 6.3V A:ROHM
L451 10uH 2520
IC451
YAW/PITCH SENSOR AMP
IC451 UPC6756GR-8JG-E2
GND
LIB1
LIA1
LO1
HI1
HO1
Vref1
AM1
OUT1
PASS
LIB2
LIA2
LO2
HI2
HO2
Vref2
AM2
OUT2
CRST
VCC
0.6
0.8
1.3
1.4
0
2.8
SE452
YAW SENSOR
R452 22k
C452 0.1u B 2012
R453 22k
C455 0.056u B
C456 0.056u B
C458 22u 6.3V
C454 22u 4V A TA
R455 1M
R456 10k
R459 XX
C461 XX 2012 B
STEADY SHOT/TRV MODEL
CN451 10P
10 SE_GND
9 YAW_AD
8 VST_C_RESET
7 PITCH_AD
6 A_2.8V
5 SE_GND
4 HP_SENSE
3 HEADPHONE_R
2 HEADPHONE_L
1 HEADPHONE_GND
TO VC-234 BOARD CN971
(SEE PAGE 4-31)
TRV MODEL
L452 100uH 2520
C465 XX B
VDR451
L453 100uH 2520
VDR452
STEREO MODEL
C466 XX B
R461 0
J451
(HEADPHONE)
LND451
SEIDEN

TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
STEADY SHOT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E
STEREO MODEL : CCD-TRV87E

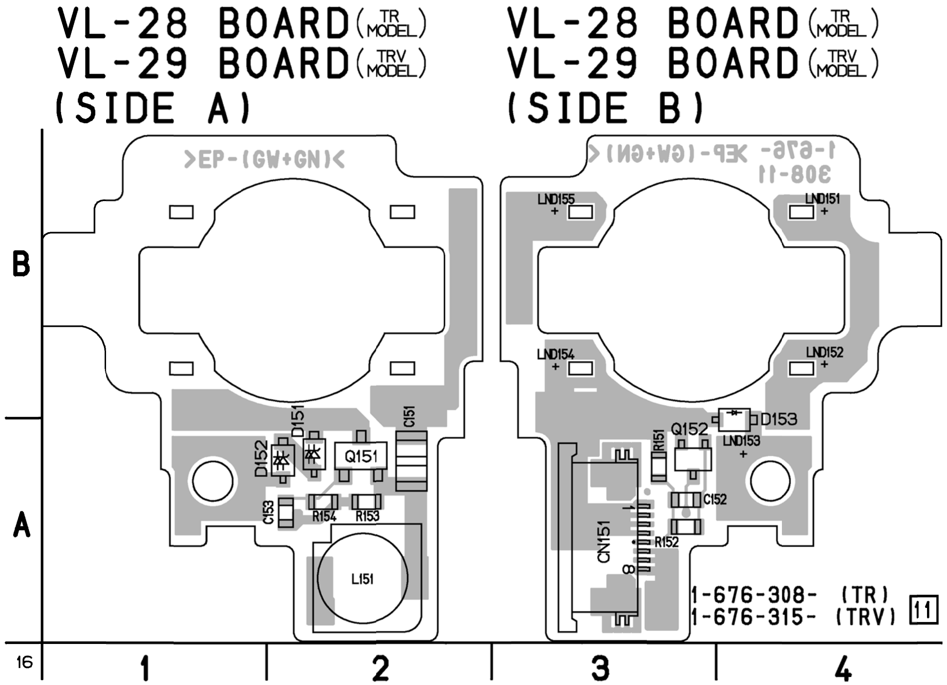
SIGNAL PATH

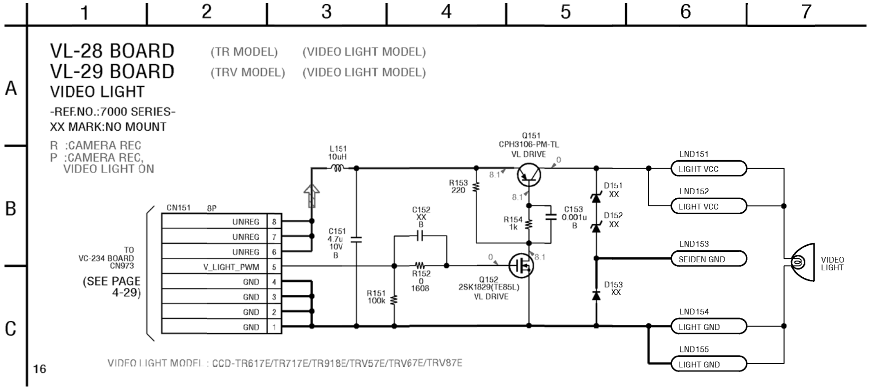
	AUDIO SIGNAL
REC	➡
PB	⇨

16

VL-28/29 (VIDEO LIGHT) PRINTED WIRING BOARD

— Ref. No. VL-28/29 Board; 7,000 Series —

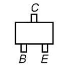

VL-28 BOARD (TR MODEL)
VL-29 BOARD (TRV MODEL)
(SIDE A)
VL-28 BOARD (TR MODEL)
VL-29 BOARD (TRV MODEL)
(SIDE B)
>EP-(GW+GN)<
1-676-
308-11
LND155
LND151
LND154
LND152
D151
D152
Q151
C151
C153
R154
R153
L151
Q152
D153
R151
LND153
C152
R152
CN151
1
8
1-676-308- (TR)
1-676-315- (TRV)
11
B
A
16
1
2
3
4


1
2
3
4
5
6
7
A
B
C
VL-28 BOARD (TR MODEL) (VIDEO LIGHT MODEL)
VL-29 BOARD (TRV MODEL) (VIDEO LIGHT MODEL)
VIDEO LIGHT
-REF.NO.:7000 SERIES-
XX MARK:NO MOUNT
R :CAMERA REC
P :CAMERA REC, VIDEO LIGHT ON
L151 10uH
Q151 CPH3106-PM-TL VL DRIVE
R153 220
8.1
8.1
0
C153 0.001u B
R154 1k
C152 XX B
C151 4.7u 10V B
R152 0 1608
R151 100k
0
8.1
Q152 2SK1829(TE85L) VL DRIVE
D151 XX
D152 XX
D153 XX
CN151 8P
UNREG 8
UNREG 7
UNREG 6
V_LIGHT_PWM 5
GND 4
GND 3
GND 2
GND 1
TO VC-234 BOARD CN973
(SEE PAGE 4-29)
LND151 LIGHT VCC
LND152 LIGHT VCC
LND153 SEIDEN GND
LND154 LIGHT GND
LND155 LIGHT GND
VIDEO LIGHT
16
VIDEO LIGHT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E

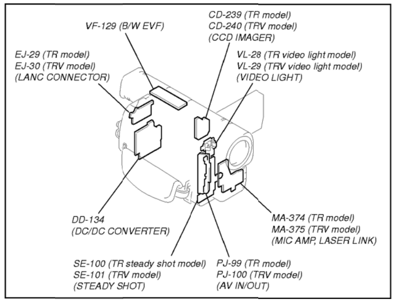
For printed wiring board

- Refer to page 4-94 for location.
- Chip parts

Transistor

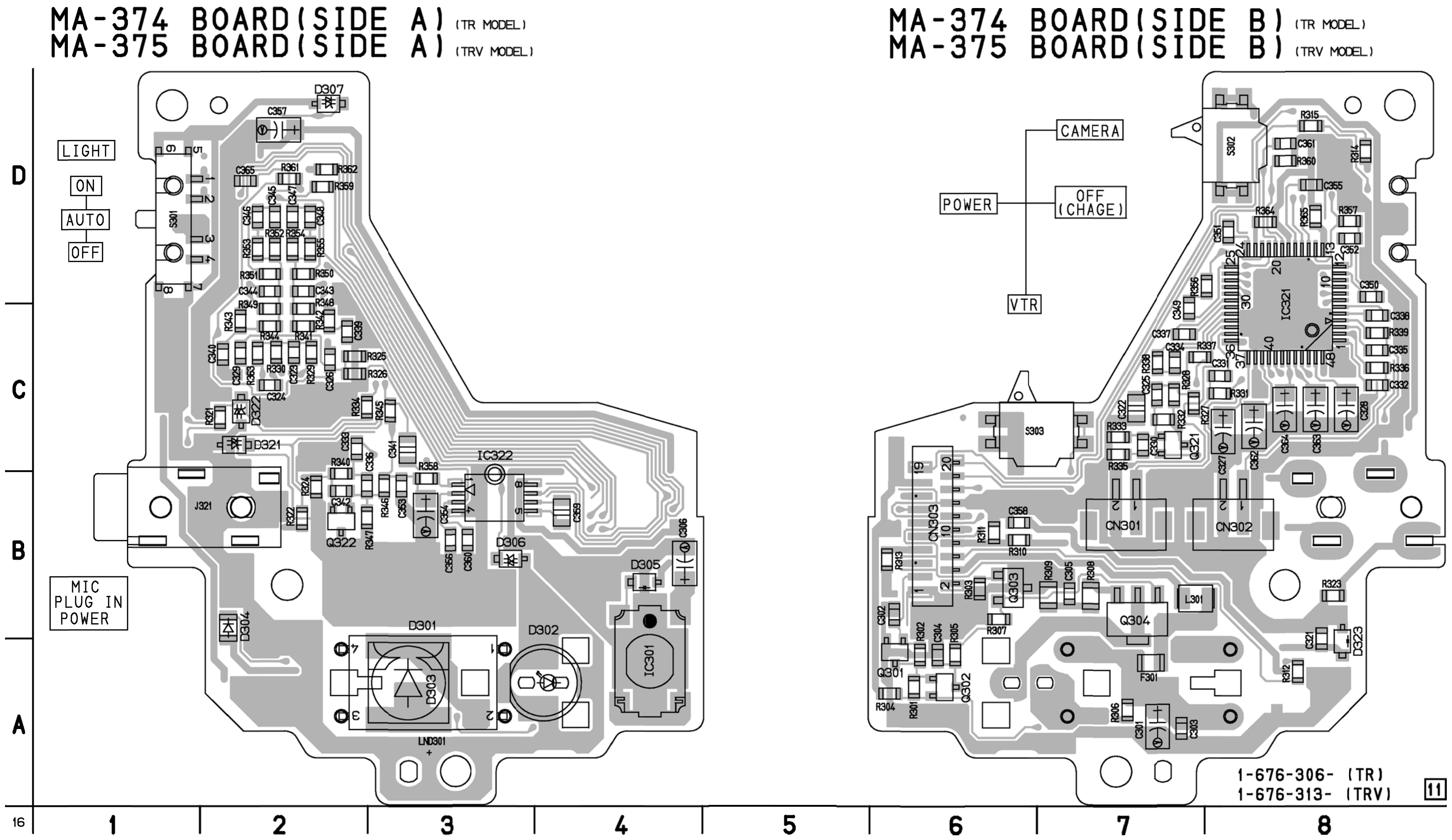


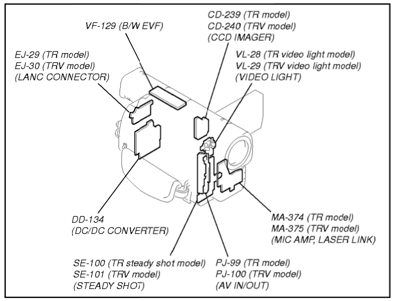
There are few cases that the part printed on this diagram isn't mounted in this model.


VF-129 (B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-28 (TR video light model)
VL-29 (TRV video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-100 (TR steady shot model)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

MA-374/375 (MIC AMP) PRINTED WIRING BOARD

— Ref. No. MA-374/375 Board; 3,000 Series —

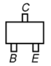

MA-374 BOARD(SIDE A) (TR MODEL)
MA-375 BOARD(SIDE A) (TRV MODEL)
MA-374 BOARD(SIDE B) (TR MODEL)
MA-375 BOARD(SIDE B) (TRV MODEL)
LIGHT
ON
AUTO
OFF
S301
MIC
PLUG IN
POWER
J321
IC322
Q322
D301
D302
D303
D304
D305
D306
D307
D321
D322
IC301
LND301
CAMERA
POWER
OFF
(CHAGE)
VTR
S302
S303
IC321
CN301
CN302
CN303
Q301
Q302
Q303
Q304
Q321
L301
F301
D323
1-676-306- (TR)
1-676-313- (TRV)
11
D
C
B
A
16
1
2
3
4
5
6
7
8


VF-129 (B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-28 (TR video light model)
VL-29 (TRV video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-100 (TR steady shot model)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

For printed wiring board

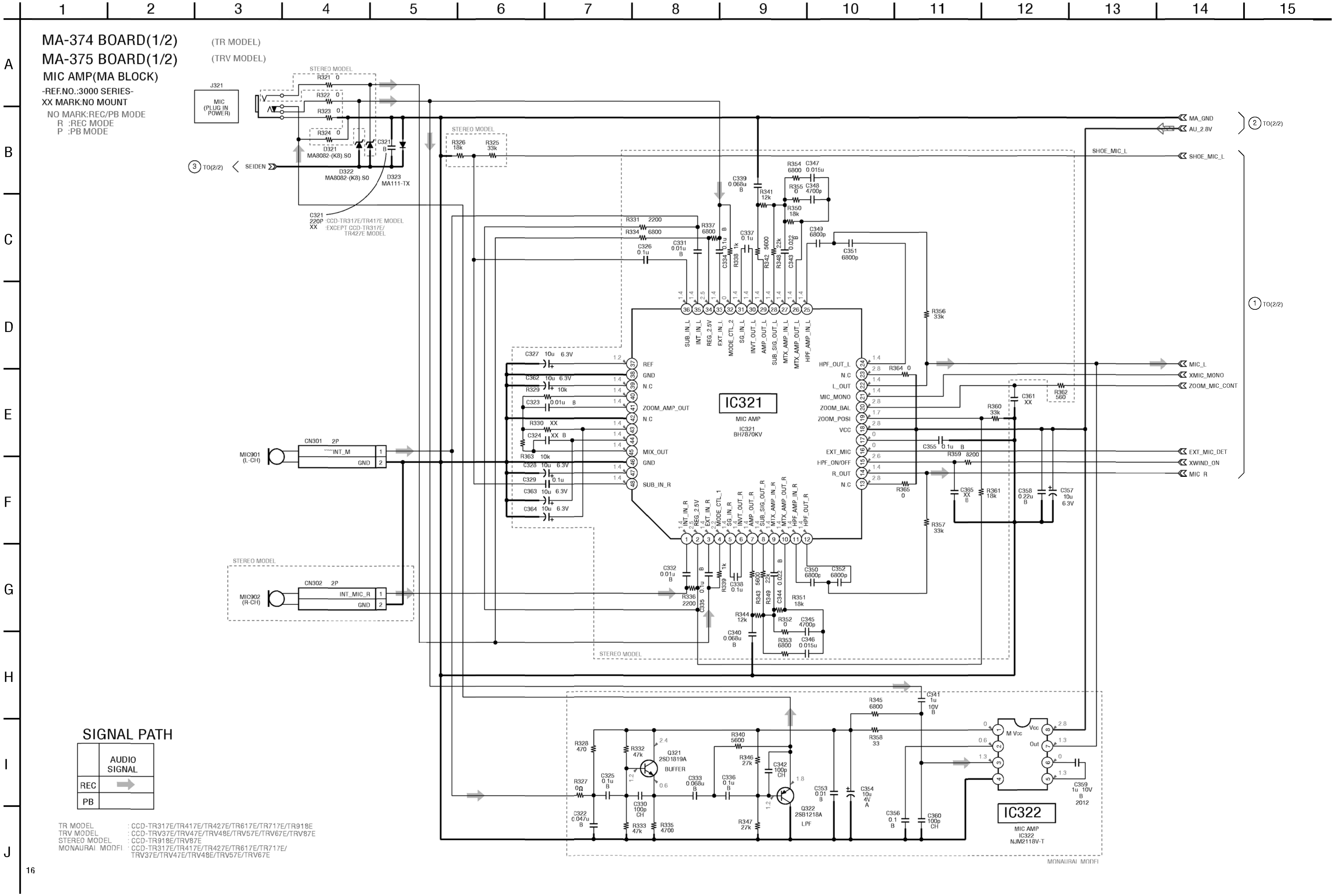
- Refer to page 4-94 for location.
- Chip parts

Transistor



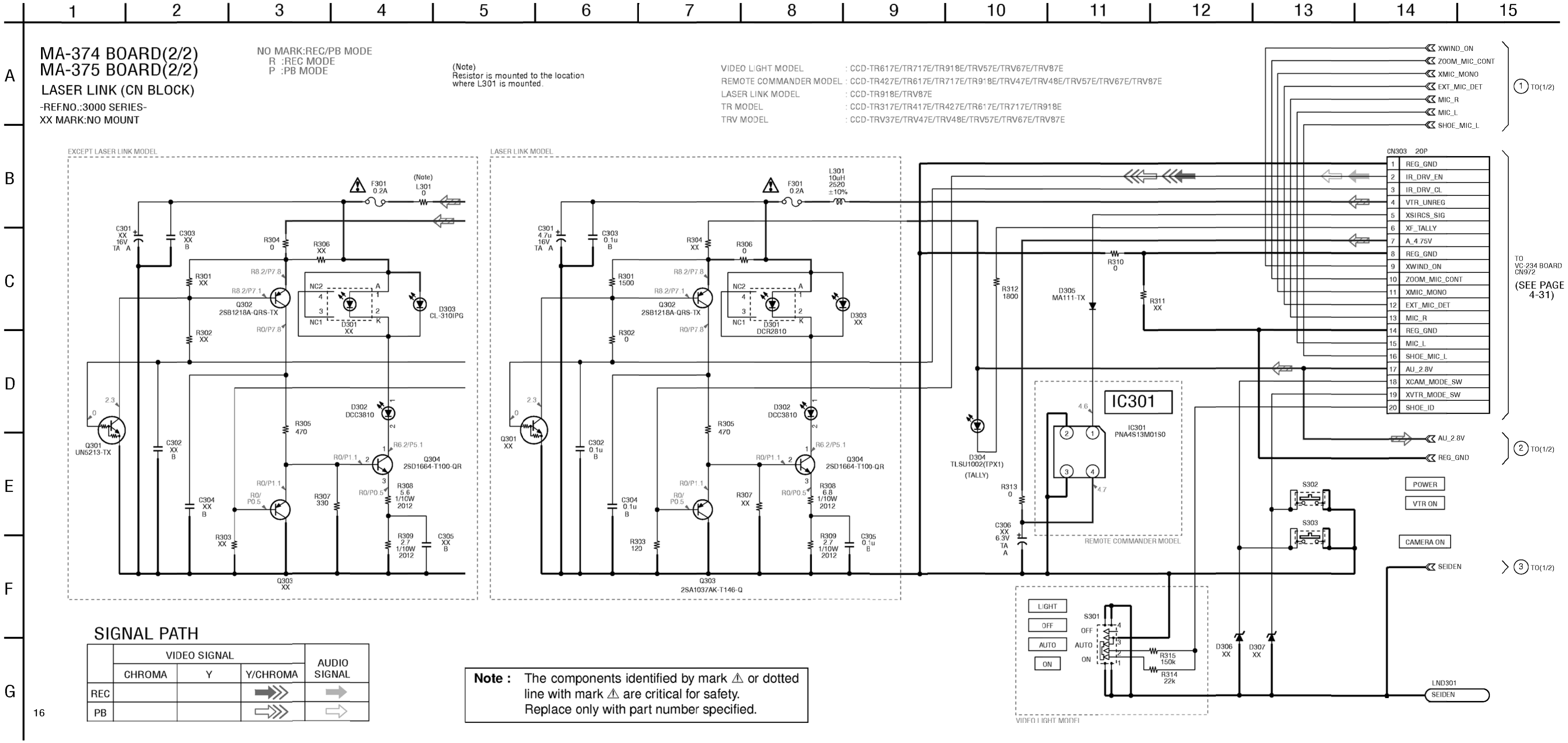
There are few cases that the part printed on this diagram isn't mounted in this model.

For Schematic Diagram
- Refer to page 4-65 for printed wiring board.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15
A B C D E F G H I J
MA-374 BOARD(1/2) (TR MODEL)
MA-375 BOARD(1/2) (TRV MODEL)
MIC AMP(MA BLOCK)
-REF.NO.:3000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
J321
MIC (PLUG IN POWER)
STEREO MODEL
R321 0
R322 0
R323 0
R324 0
D321 MA8082-(K8) S0
D322 MA8082-(K8) S0
D323 MA111-TX
C321 B
C321 220P :CCD-TR317E/TR417E MODEL
XX :EXCEPT CCD-TR317E/TR427E MODEL
3 TO(2/2)
SEIDEN
R326 18k
R325 33k
MA_GND
AU_2.8V
2 TO(2/2)
SHOE_MIC_L
1 TO(2/2)
MIC_L
XMIC_MONO
ZOOM_MIC_CONT
EXT_MIC_DET
XWIND_ON
MIC_R
IC321
MIC AMP
IC321 BH7870KV
SUB_IN_L
INT_IN_L
REG_2.5V
EXT_IN_L
MODE_CTL_2
SG_IN_L
INVT_OUT_L
AMP_OUT_L
SUB_SIG_OUT_L
MTX_AMP_IN_L
MTX_AMP_OUT_L
HPF_AMP_IN_L
REF
GND
N.C
ZOOM_AMP_OUT
MIX_OUT
SUB_IN_R
HPF_OUT_L
L_OUT
MIC_MONO
ZOOM_BAL
ZOOM_POSI
VCC
EXT_MIC
HPF_ON/OFF
R_OUT
INT_IN_R
REG_2.5V
EXT_IN_R
MODE_CTL_1
SG_IN_R
INVT_OUT_R
AMP_OUT_R
SUB_SIG_OUT_R
MTX_AMP_IN_R
MTX_AMP_OUT_R
HPF_AMP_IN_R
HPF_OUT_R
C327 10u 6.3V
C362 10u 6.3V
R329 10k
C323 0.01u B
R330 XX
C324 XX B
R363 10k
C328 10u 6.3V
C329 0.1u
C363 10u 6.3V
C364 10u 6.3V
R331 2200
R334 6800
C326 0.1u
C331 0.01u B
R337 6800
C334 0.1u B
R338 1k
C337 0.1u
R342 5600
R348 22k
C343 0.022 B
C339 0.068u B
R341 12k
R354 6800
C347 0.015u
R355 0
C348 4700p
R350 18k
C349 6800p
C351 6800p
R356 33k
R364 0
C361 XX
R362 560
R360 33k
C355 0.1u B
R359 8200
R365 0
C365 XX B
R361 18k
C358 0.22u B
C357 10u 6.3V
R357 33k
CN301 2P
INT_M
GND
MIC901 (L-CH)
CN302 2P
INT_MIC_R
MIC902 (R-CH)
C332 0.01u B
R336 2200
C335 0.1u B
R339 1k
C338 0.1u
R343 5600
R349 22k
C344 0.022 B
C350 6800p
C352 6800p
R351 18k
R344 12k
R352 0
C345 4700p
C340 0.068u B
R353 6800
C346 0.015u
STEREO MODEL
C341 1u 10V B
R345 6800
R358 33
R340 5600
R328 470
R332 47k
Q321 2SD1819A BUFFER
R346 27k
C342 100p CH
Q322 2SB1218A LPF
R327 0Ω
C325 0.1u B
C330 100p CH
C333 0.068u B
C336 0.1u B
C353 0.01 B
C354 10u 4V A
C356 0.1 B
C360 100p CH
C322 0.047u B
R333 47k
R335 4700
R347 27k
IC322
MIC AMP
IC322 NJM2118V-T
M Vcc
Vcc
Out
C359 1u 10V B 2012
MONAURAL MODEL
SIGNAL PATH
AUDIO SIGNAL
REC
PB
TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
STEREO MODEL : CCD-TR918E/TRV87E
MONAURAL MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E
16

For Schematic Diagram

- Refer to page 4-65 for printed wiring board.


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
A
B
C
D
E
F
G
16
MA-374 BOARD(2/2)
MA-375 BOARD(2/2)
LASER LINK (CN BLOCK)
-REF.NO.:3000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
(Note)
Resistor is mounted to the location where L301 is mounted.
VIDEO LIGHT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E
REMOTE COMMANDER MODEL : CCD-TR427E/TR617E/TR717E/TR918E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
LASER LINK MODEL : CCD-TR918E/TRV87E
TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
EXCEPT LASER LINK MODEL
F301 0.2A
(Note) L301 0
C301 XX 16V TA A
C303 XX B
R304 0
R306 XX
R301 XX
R8.2/P7.8
R8.2/P7.1
Q302 2SB1218A-QRS-TX
NC2
NC1
A
K
4
3
1
2
D301 XX
D303 CL-310IPG
R302 XX
R0/P7.8
2.3
0
Q301 UN5213-TX
C302 XX B
D302 DCC3810
R305 470
R6.2/P5.1
R0/P1.1
Q304 2SD1664-T100-QR
R0/P1.1
R0/ P0.5
R307 330
R0/P0.5
R308 5.6 1/10W 2012
C304 XX B
R303 XX
R309 2.7 1/10W 2012
C305 XX B
Q303 XX
LASER LINK MODEL
F301 0.2A
L301 10uH 2520 ±10%
C301 4.7u 16V TA A
C303 0.1u B
R304 XX
R306 0
R301 1500
Q302 2SB1218A-QRS-TX
D301 DCR2810
D303 XX
R302 0
Q301 XX
C302 0.1u B
D302 DCC3810
R305 470
Q304 2SD1664-T100-QR
R307 XX
R308 6.8 1/10W 2012
C304 0.1u B
R303 120
R309 2.7 1/10W 2012
C305 0.1u B
Q303 2SA1037AK-T146-Q
R310 0
R312 1800
D305 MA111-TX
R311 XX
IC301
4.6
4.7
IC301 PNA4S13M01S0
D304 TLSU1002(TPX1) (TALLY)
R313 0
C306 XX 6.3V TA A
REMOTE COMMANDER MODEL
S302
S303
POWER
VTR ON
CAMERA ON
LIGHT
OFF
AUTO
ON
S301
R315 150k
R314 22k
D306 XX
D307 XX
VIDEO LIGHT MODEL
LND301
SEIDEN
XWIND_ON
ZOOM_MIC_CONT
XMIC_MONO
EXT_MIC_DET
MIC_R
MIC_L
SHOE_MIC_L
① TO(1/2)
CN303 20P
1 REG_GND
2 IR_DRV_EN
3 IR_DRV_CL
4 VTR_UNREG
5 XSIRCS_SIG
6 XF_TALLY
7 A_4.75V
8 REG_GND
9 XWIND_ON
10 ZOOM_MIC_CONT
11 XMIC_MONO
12 EXT_MIC_DET
13 MIC_R
14 REG_GND
15 MIC_L
16 SHOE_MIC_L
17 AU_2.8V
18 XCAM_MODE_SW
19 XVTR_MODE_SW
20 SHOE_ID
TO VC-234 BOARD CN972
(SEE PAGE 4-31)
AU_2.8V
REG_GND
② TO(1/2)
SEIDEN
③ TO(1/2)

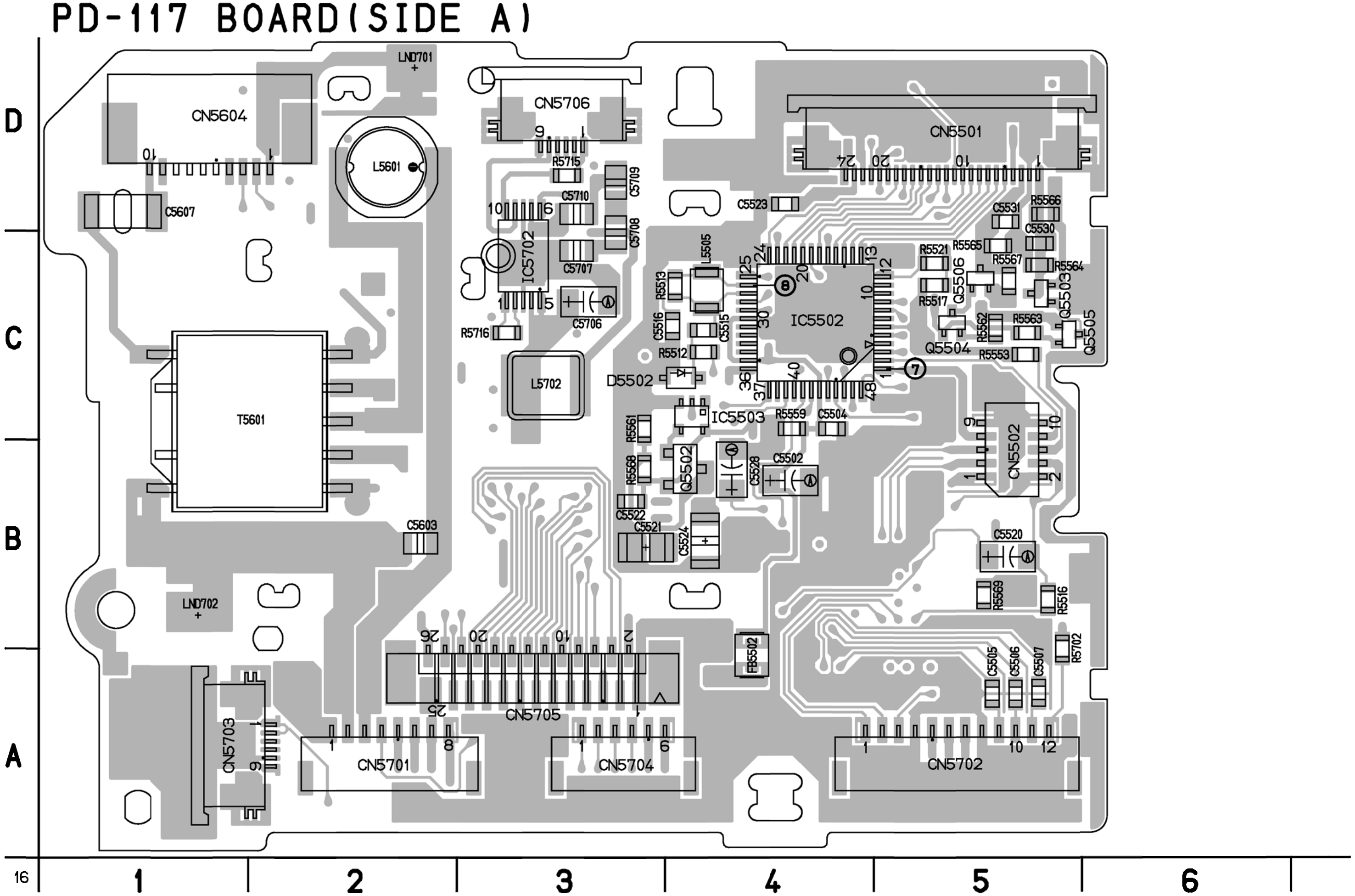
SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
REC			➡	➡
PB			⇨	⇨

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

PD-117 (RGB LCD DRIVER, TIMING GENERATOR, CG LCD DRIVER, BACK LIGHT DRIVE) PRINTED WIRING BOARD

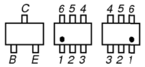
— Ref. No. PD-117 Board; 10,000 Series —


PD-117 BOARD(SIDE A)
D
C
B
A
1
2
3
4
5
6
16
LND701
LND702
CN5604
CN5706
CN5501
CN5703
CN5701
CN5705
CN5704
CN5702
CN5502
L5601
L5702
L5505
T5601
C5607
C5603
IC5702
IC5502
IC5503
D5502
Q5502
Q5504
Q5505
Q5506
Q5503
FB5502
C5706
C5707
C5708
C5709
C5710
R5715
R5716
C5523
C5531
C5530
R5566
R5521
R5565
R5567
R5564
R5517
R5562
R5563
R5553
R5513
C5516
C5515
R5512
R5561
R5559
C5504
C5502
C5528
R5558
C5522
C5521
C5524
C5520
R5569
R5516
R5702
C5505
C5506
C5507

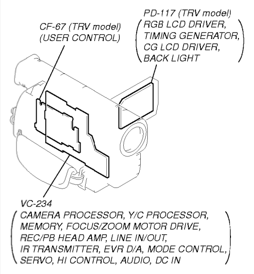
For printed wiring board

- Refer to page 4-94 for location.
- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.
- Chip parts

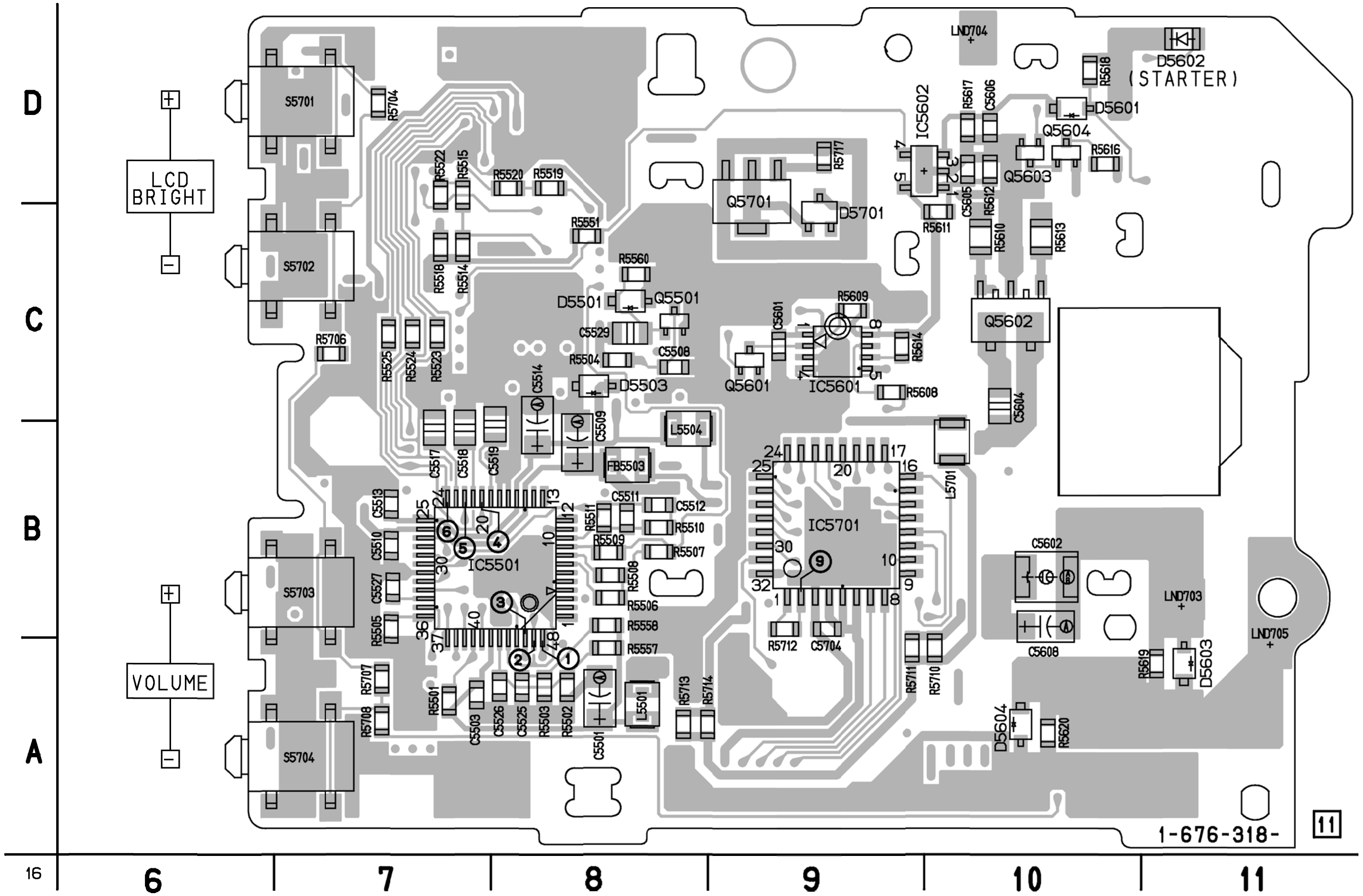
Transistor


C
B E
6 5 4
1 2 3
4 5 6
3 2 1

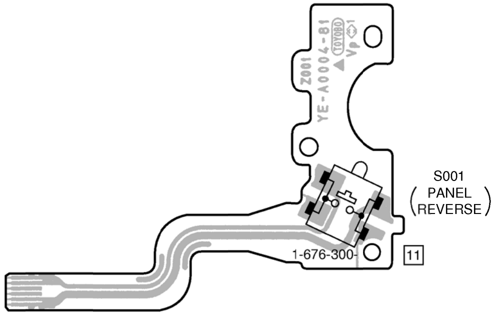
There are few cases that the part printed on this diagram isn't mounted in this model.

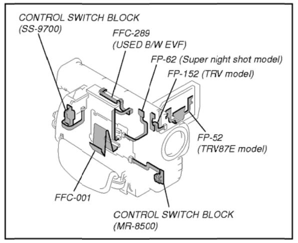

CF-67 (TRV model)
(USER CONTROL)
PD-117 (TRV model)
RGB LCD DRIVER,
TIMING GENERATOR,
CG LCD DRIVER,
BACK LIGHT
VC-234
CAMERA PROCESSOR, Y/C PROCESSOR,
MEMORY, FOCUS/ZOOM MOTOR DRIVE,
REC/PB HEAD AMP, LINE IN/OUT,
IR TRANSMITTER, EVR D/A, MODE CONTROL,
SERVO, HI CONTROL, AUDIO, DC IN

PD-117 BOARD(SIDE B)


D
C
B
A
6
7
8
9
10
11
16
LCD BRIGHT
VOLUME
S5701
S5702
S5703
S5704
R5704
R5706
R5707
R5708
R5505
C5513
C5510
C5527
R5525
R5524
R5523
R5522
R5515
R5518
R5514
R5520
R5519
R5551
R5560
D5501
Q5501
C5529
C5508
R5504
C5514
D5503
C5509
C5517
C5518
C5519
L5504
FB5503
C5511
C5512
R5510
R5507
R5561
R5509
R5508
R5506
R5558
R5557
IC5501
R5501
C5503
C5526
C5525
R5503
R5502
C5501
L5501
R5713
R5714
Q5701
D5701
R5717
IC5602
R5617
C5606
R5618
LND704
D5602
(STARTER)
D5601
Q5604
R5616
Q5603
C5605
R5612
R5611
R5610
R5613
R5609
C5601
Q5601
IC5601
R5614
R5608
Q5602
C5604
L5701
IC5701
R5712
C5704
R5711
R5710
C5602
C5608
LND703
LND705
R5619
D5603
D5604
R5620
1-676-318-
11

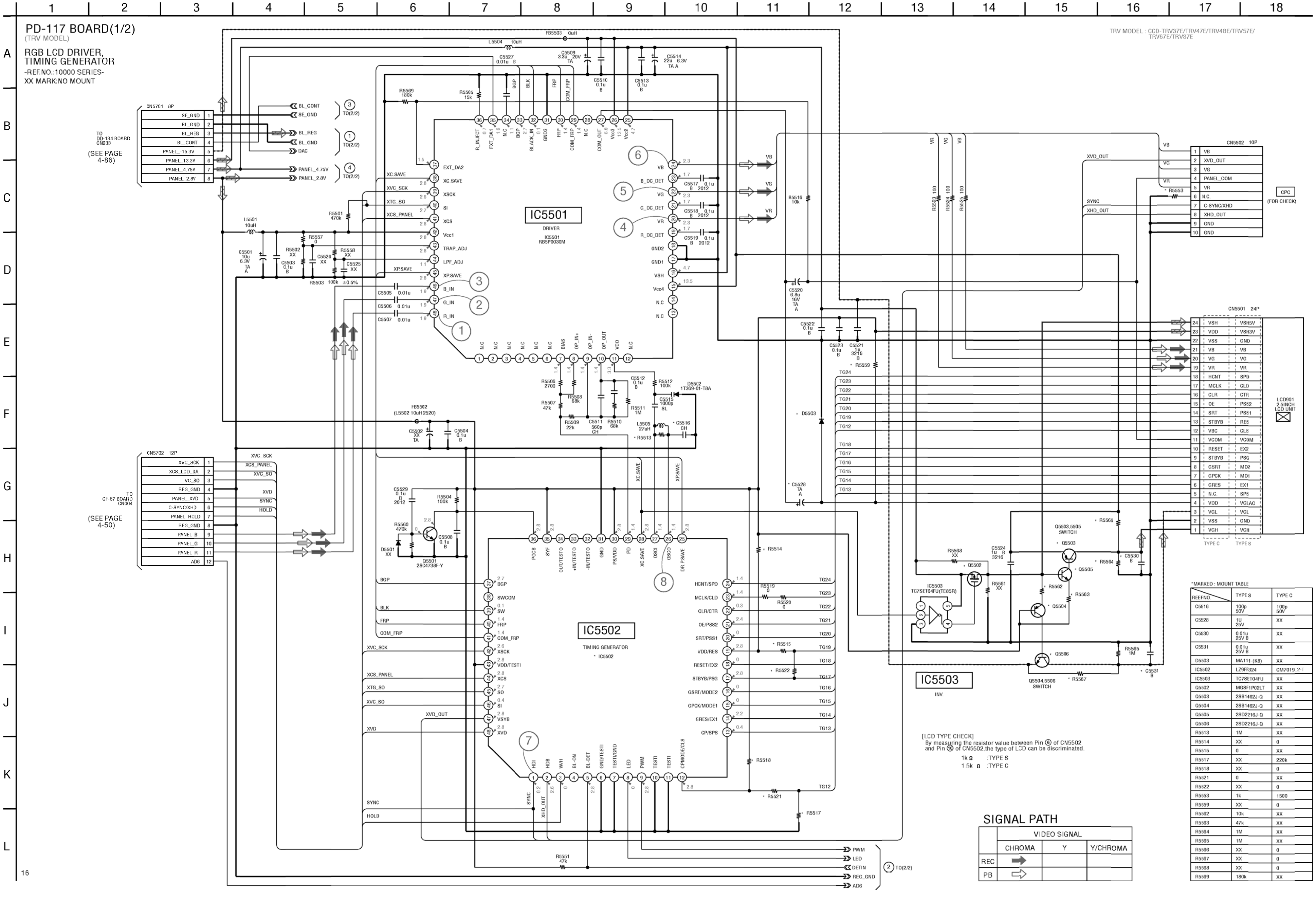
FP-152 FLEXIBLE BOARD


S001
PANEL
REVERSE
1-676-300-
11


CONTROL SWITCH BLOCK
(SS-9700)
FFC-289
(USED B/W EVF)
FP-62 (Super night shot model)
FP-152 (TRV model)
FP-52
(TRV87E model)
FFC-001
CONTROL SWITCH BLOCK
(MR-8500)

For Schematic Diagram

- Refer to page 4-71 for printed wiring board.
- Refer to page 4-90 for waveforms.


1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
A B C D E F G H I J K L
PD-117 BOARD(1/2)
(TRV MODEL)
RGB LCD DRIVER,
TIMING GENERATOR
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
CN5701 8P
TO DD-134 BOARD CN933
(SEE PAGE 4-86)
CN5702 12P
TO CF-67 BOARD CN004
(SEE PAGE 4-50)
IC5501
DRIVER
IC5501 RB5P003CM
IC5502
TIMING GENERATOR
IC5503
INV.
IC5503 TC7SET04FU(TE85R)
CN5502 10P
CN5501 24P
LCD901 2.5INCH LCD UNIT
CPC (FOR CHECK)
Q5503,5505 SWITCH
Q5504,5506 SWITCH
Q5501 2SC4738F-Y
D5502 1T309-01-T8A
TYPE C
TYPE S
TO(2/2)
16

[LCD TYPE CHECK]
By measuring the resistor value between Pin ⑥ of CN5502 and Pin ⑩ of CN5502,the type of LCD can be discriminated.

1k Ω :TYPE S
1.5k Ω :TYPE C

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC	➡		
PB	⇨		

*MARKED : MOUNT TABLE

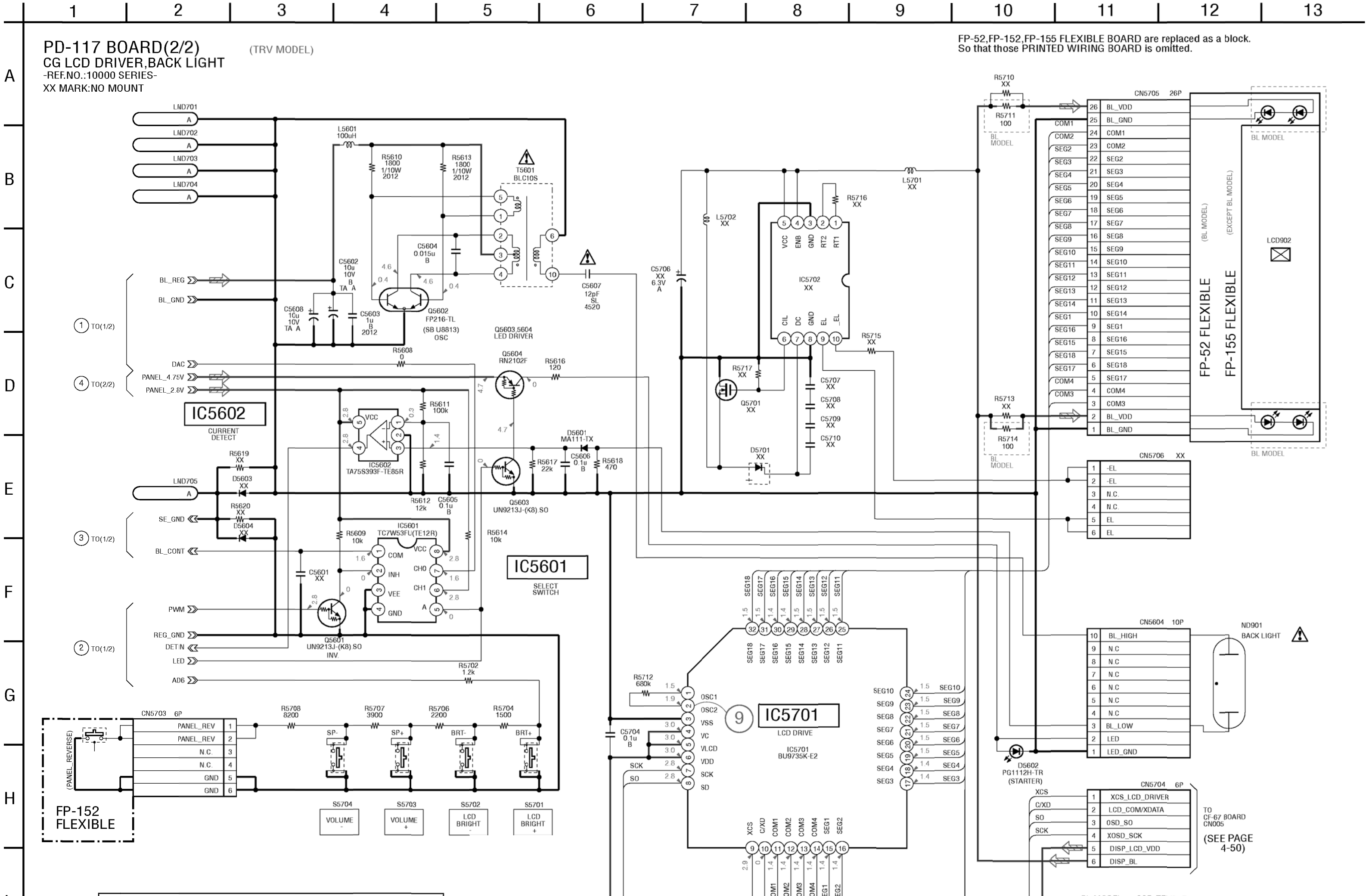
REEF.NO.	TYPE S	TYPE C
C5516	100p 50V	100p 50V
C5528	1U 25V	XX
C5530	0.01u 25V B	XX
C5531	0.01u 25V B	XX
D5503	MA111-(K8)	XX
IC5502	LZ9FF324	CM7019L2-T
IC5503	TC7SET04FU	XX
Q5502	MGSF1P02LT	XX
Q5503	2SB1462J-Q	XX
Q5504	2SB1462J-Q	XX
Q5505	2SD2216J-Q	XX
Q5506	2SD2216J-Q	XX
R5513	1M	XX
R5514	XX	0
R5515	0	XX
R5517	XX	220k
R5518	XX	0
R5521	0	XX
R5522	XX	0
R5553	1k	1500
R5559	XX	0
R5562	10k	XX
R5563	47k	XX
R5564	1M	XX
R5565	1M	XX
R5566	XX	0
R5567	XX	0
R5568	XX	0
R5569	180k	XX

RGB LCD DRIVER,TIMING GENERATOR

PD-117 (1/2)

For Schematic Diagram

- Refer to page 4-71 for printed wiring board.
- Refer to page 4-90 for waveform.


1
2
3
4
5
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
I
PD-117 BOARD(2/2)
(TRV MODEL)
CG LCD DRIVER,BACK LIGHT
-REF.NO.:10000 SERIES-
XX MARK:NO MOUNT
LND701
LND702
LND703
LND704
LND705
L5601 100uH
R5610 1800 1/10W 2012
R5613 1800 1/10W 2012
T5601 BLC10S
C5604 0.015u B
C5602 10u 10V B TA A
C5608 10u 10V TA A
C5603 1u B 2012
Q5602 FP216-TL (SB U8813) OSC
Q5603,5604 LED DRIVER
C5607 12pF SL 4520
C5706 XX 6.3V A
L5702 XX
L5701 XX
R5716 XX
IC5702 XX
VCC ENB GND RT2 RT1
CIL DC GND EL _EL
R5715 XX
R5717 XX
Q5701 XX
D5701 XX
C5707 XX
C5708 XX
C5709 XX
C5710 XX
BL_REG
BL_GND
TO(1/2)
DAC
PANEL_4.75V
PANEL_2.8V
TO(2/2)
IC5602
CURRENT DETECT
R5608 0
Q5604 RN2102F
R5616 120
R5611 100k
IC5602 TA75S393F-TE85R
D5601 MA111-TX
R5617 22k
C5606 0.1u B
R5618 470
R5619 XX
D5603 XX
R5620 XX
D5604 XX
SE_GND
BL_CONT
R5612 12k
C5605 0.1u B
Q5603 UN9213J-(K8) SO
R5609 10k
IC5601 TC7W53FU(TE12R)
COM
INH
VEE
GND
VCC
CH0
CH1
R5614 10k
IC5601
SELECT SWITCH
C5601 XX
PWM
REG_GND
DET.N
LED
AD6
Q5601 UN9213J-(K8) SO INV
R5702 1.2k
R5712 680k
C5704 0.1u B
SCK
SO
IC5701
LCD DRIVE
IC5701 BU9735K-E2
OSC1
OSC2
VSS
VC
VLCD
VDD
SCK
SD
SEG18 SEG17 SEG16 SEG15 SEG14 SEG13 SEG12 SEG11
SEG10 SEG9 SEG8 SEG7 SEG6 SEG5 SEG4 SEG3
XCS C/XD COM1 COM2 COM3 COM4 SEG1 SEG2
CN5703 6P
PANEL_REV
N.C.
GND
(PANEL_REVERSE)
R5708 8200
R5707 3900
R5706 2200
R5704 1500
SP-
SP+
BRT-
BRT+
S5704 VOLUME -
S5703 VOLUME +
S5702 LCD BRIGHT -
S5701 LCD BRIGHT +
FP-152 FLEXIBLE
R5710 XX
R5711 100
BL MODEL
R5713 XX
R5714 100
CN5705 26P
BL_VDD
BL_GND
COM1
COM2
SEG2 SEG3 SEG4 SEG5 SEG6 SEG7 SEG8 SEG9 SEG10 SEG11 SEG12 SEG13 SEG14 SEG1 SEG16 SEG15 SEG18 SEG17
COM4
COM3
FP-52 FLEXIBLE
FP-155 FLEXIBLE
(BL MODEL)
(EXCEPT BL MODEL)
LCD902
CN5706 XX
-EL
N.C
EL
CN5604 10P
BL_HIGH
BL_LOW
LED
LED_GND
ND901 BACK LIGHT
D5602 PG1112H-TR (STARTER)
CN5704 6P
XCS_LCD_DRIVER
LCD_COM/XDATA
OSD_SO
XOSD_SCK
DISP_LCD_VDD
DISP_BL
TO CF-67 BOARD CN006
(SEE PAGE 4-50)
16

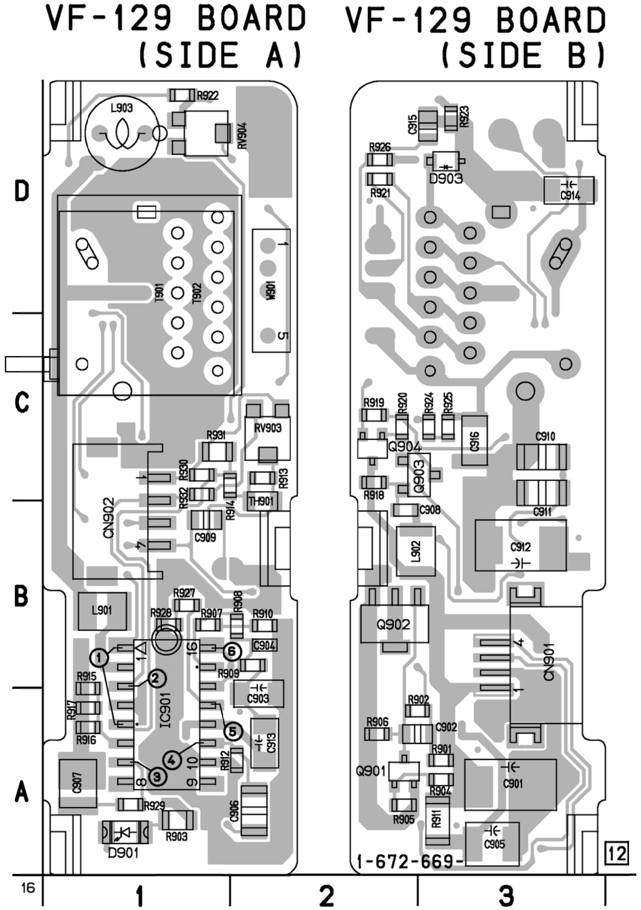
FP-52,FP-152,FP-155 FLEXIBLE BOARD are replaced as a block.
So that those PRINTED WIRING BOARD is omitted.

BL MODEL : CCD-TRV87E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

VF-129 (B/W EVF) PRINTED WIRING BOARD

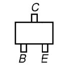
— Ref. No. VF-129 Board; 3,000 Series —


VF-129 BOARD (SIDE A)
VF-129 BOARD (SIDE B)
D
C
B
A
16
1
2
3
L903
R922
RV904
T901
T902
W901
RV903
R931
R930
R932
R913
R914
TH901
CN902
C909
L901
R927
R908
R928
R907
R910
C904
R909
C903
R915
R917
R916
IC901
R912
C913
C907
R929
C906
D901
R903
C915
R923
R926
D903
R921
C914
R919
R920
R924
R925
Q904
C916
C910
Q903
R918
C908
C911
L902
C912
Q902
CN901
R902
R906
C902
R901
Q901
C901
R904
R911
R905
C905
1-672-669-
12

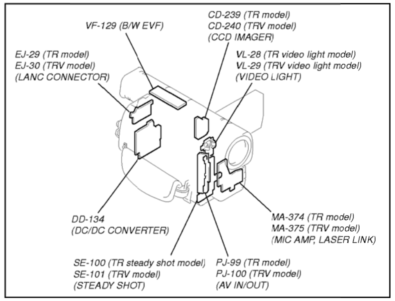
For printed wiring board

- Refer to page 4-95 for location.
- Chip parts

Transistor

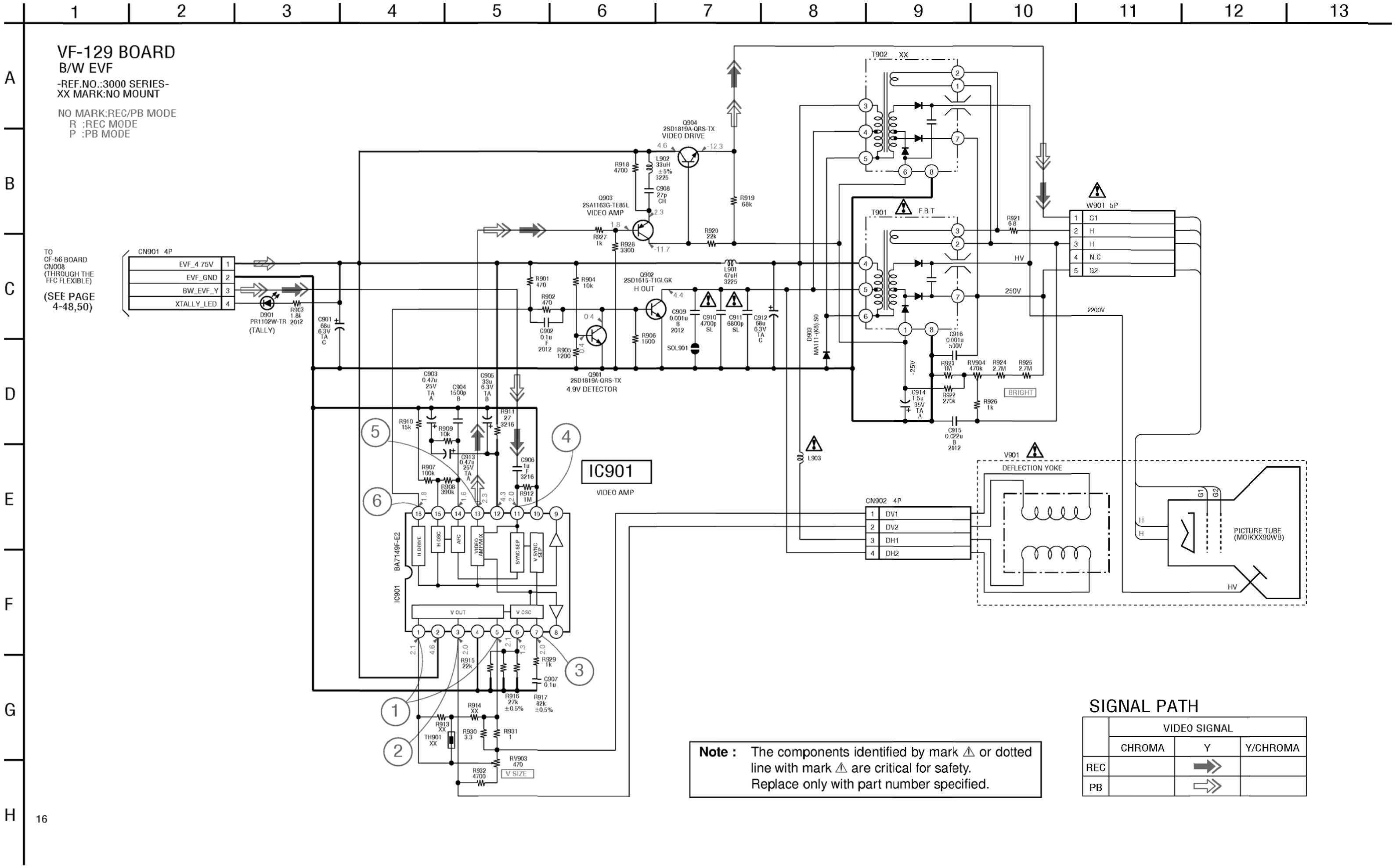


There are few cases that the part printed on this diagram isn't mounted in this model.


VF-129 (B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-28 (TR video light model)
VL-29 (TRV video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-100 (TR steady shot model)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

For Schematic Diagram

- Refer to page 4-90 for waveforms.


1
2
3
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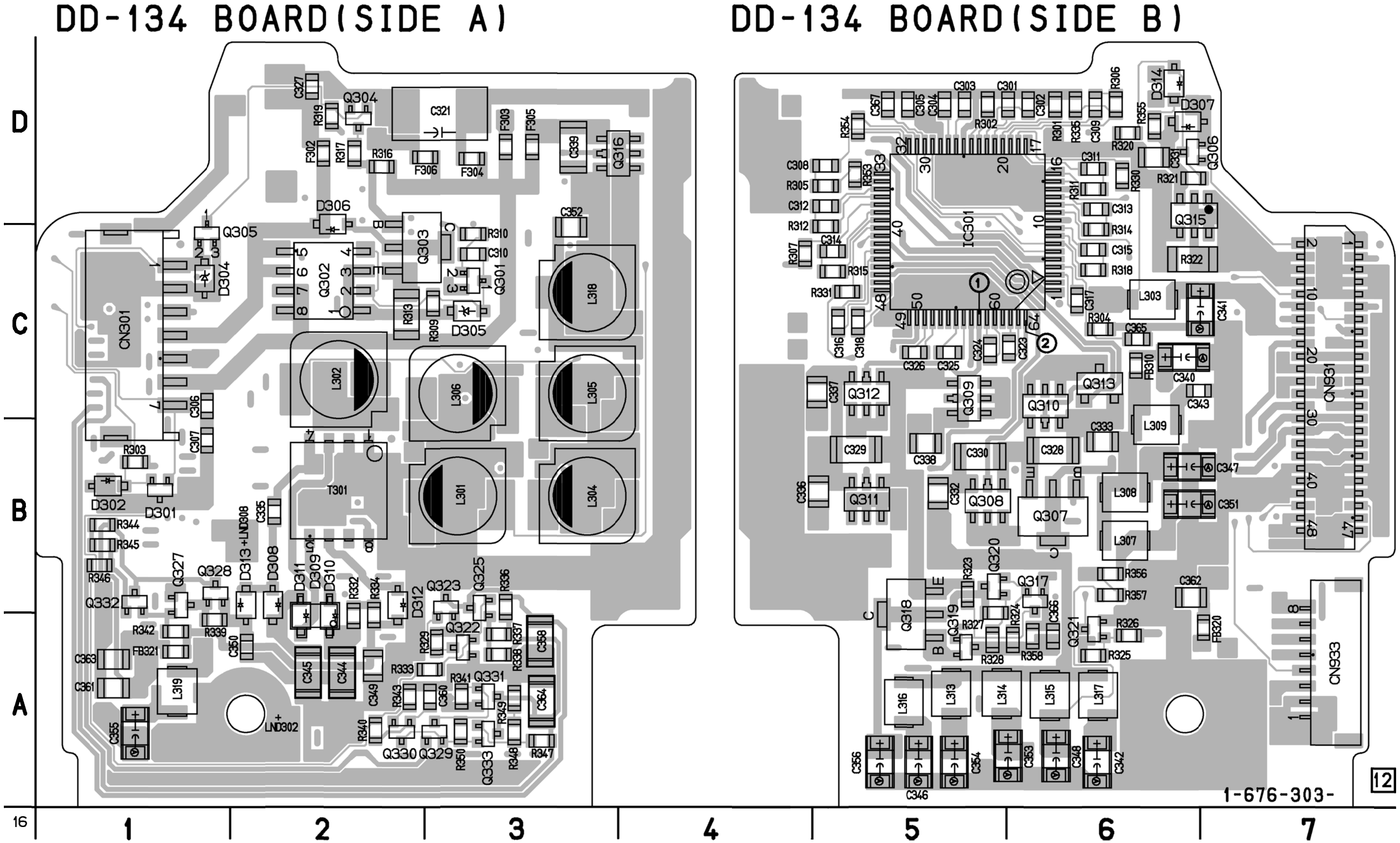
6
7
8
9
10
11
12
13
A
B
C
D
E
F
G
H
VF-129 BOARD
B/W EVF
-REF.NO.:3000 SERIES-
XX MARK:NO MOUNT
NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
TO
CF-56 BOARD
CN008
(THROUGH THE
FFC FLEXIBLE)
(SEE PAGE
4-48,50)
CN901 4P
EVF_4.75V
EVF_GND
BW_EVF_Y
XTALLY_LED
D901
PR1102W-TR
(TALLY)
R903
1.8k
2012
C901
68u
6.3V
TA
C
Q904
2SD1819A-QRS-TX
VIDEO DRIVE
4.6
-12.3
R918
4700
L902
33uH
±5%
3225
C908
27p
CH
Q903
2SA1163G-TE85L
VIDEO AMP
2.3
1.8
R927
1k
R928
3300
-11.7
R919
68k
R920
22k
R901
470
R904
10k
R902
470
C902
0.1u
F
2012
R905
1200
0.4
Q901
2SD1819A-QRS-TX
4.9V DETECTOR
Q902
2SD1615-T1GLGK
H OUT
4.4
C909
0.001u
B
2012
C910
4700p
SL
C911
6800p
SL
C912
68u
6.3V
TA
C
R906
1500
SOL901
L901
47uH
3225
D903
MA111-(K8).S0
L903
T902 XX
T901 F.B.T
HV
250V
2200V
-25V
R921
6.8
W901 5P
G1
H
H
N.C.
G2
C916
0.001u
500V
R923
1M
RV904
470k
R924
2.7M
R925
2.7M
BRIGHT
C914
1.5u
35V
TA
A
R922
270k
R926
1k
C915
0.022u
B
2012
V901
DEFLECTION YOKE
CN902 4P
DV1
DV2
DH1
DH2
PICTURE TUBE
(M0IKXX90WB)
HV
C903
0.47u
25V
TA
A
C904
1500p
B
C905
33u
6.3V
TA
B
R910
15k
R909
10k
R911
27
3216
C913
0.47u
25V
TA
A
C906
1u
F
3216
R907
100k
R908
390k
R912
1M
IC901
VIDEO AMP
BA7149F-E2
IC901
H DRIVE
H OSC
AFC
VIDEO AMP/MIX
SYNC SEP
V SYNC SEP
V OUT
V OSC
R915
22k
R929
1k
C907
0.1u
R916
27k
±0.5%
R917
82k
±0.5%
R914
XX
R913
XX
TH901
XX
R930
3.3
R931
1
RV903
470
V SIZE
R932
4700
16

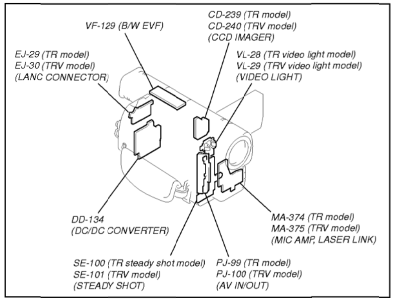
Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
REC		➡	
PB		⇨	

DD-134 (DC/DC CONVERTER) PRINTED WIRING BOARD
— Ref. No. DD-134 Board; 2,000 Series —

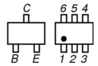

DD-134 BOARD(SIDE A)
DD-134 BOARD(SIDE B)
D
C
B
A
16
1
2
3
4
5
6
7
CN301
Q302
Q303
Q301
Q304
Q305
C321
L302
L306
L305
L318
L301
L304
T301
LND302
CN931
CN933
IC301
L303
L309
L308
L307
L316
L313
L314
L315
L317
Q306
Q307
Q308
Q309
Q310
Q311
Q312
Q313
Q315
Q316
Q318
1-676-303-
12


VF-129 (B/W EVF)
CD-239 (TR model)
CD-240 (TRV model)
(CCD IMAGER)
EJ-29 (TR model)
EJ-30 (TRV model)
(LANC CONNECTOR)
VL-28 (TR video light model)
VL-29 (TRV video light model)
(VIDEO LIGHT)
DD-134
(DC/DC CONVERTER)
MA-374 (TR model)
MA-375 (TRV model)
(MIC AMP, LASER LINK)
SE-100 (TR steady shot model)
SE-101 (TRV model)
(STEADY SHOT)
PJ-99 (TR model)
PJ-100 (TRV model)
(AV IN/OUT)

For printed wiring board

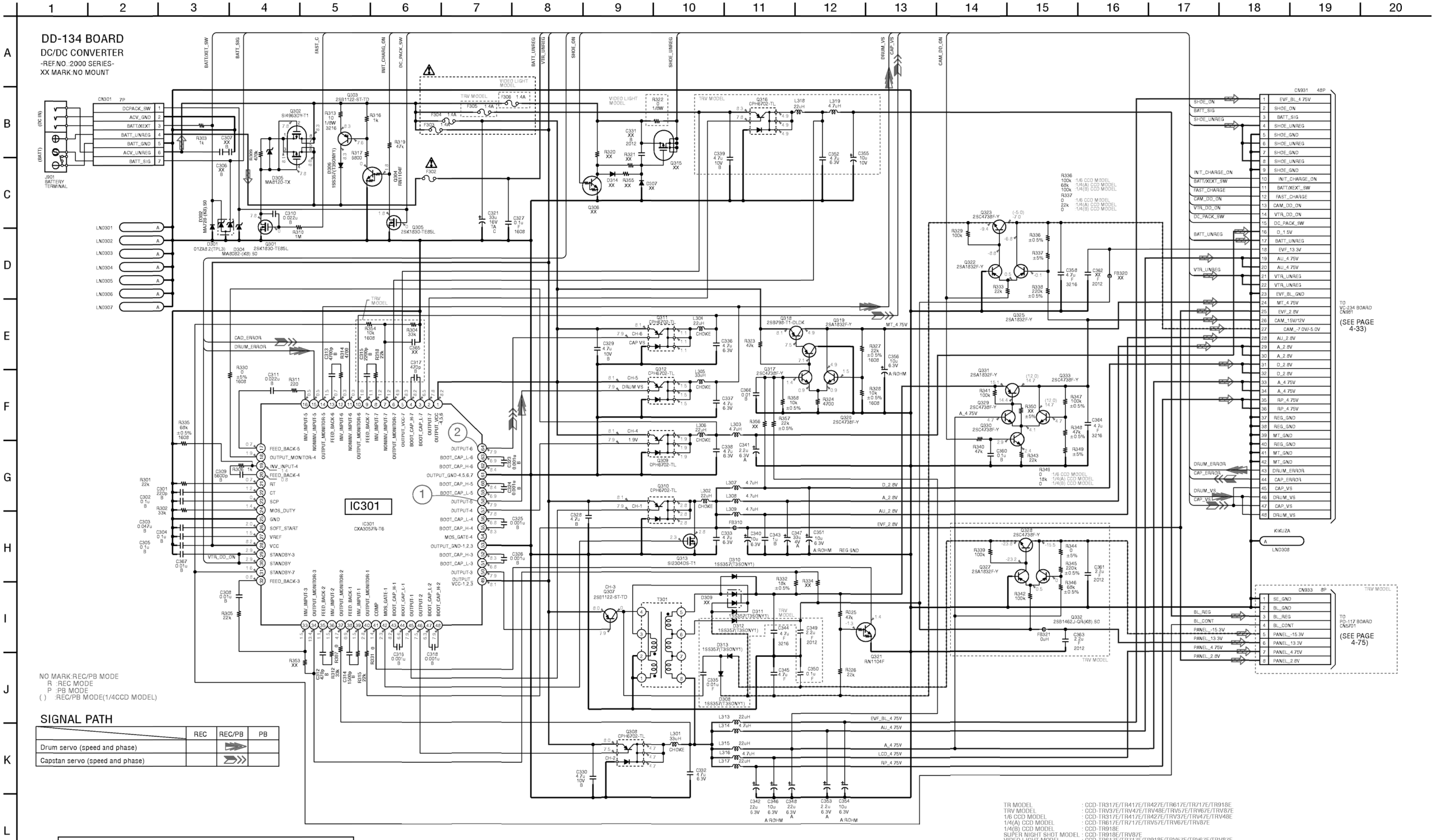
- Refer to page 4-95 for location.
- This board is four-layer print board. However, the patterns of layers two and three have not been included in the diagram.
- Chip parts

Transistor



There are few cases that the part printed on this diagram isn't mounted in this model.

For Schematic Diagram
- Refer to page 4-90 for waveforms.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15
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17
18
19
20
A
B
C
D
E
F
G
H
I
J
K
L
DD-134 BOARD
DC/DC CONVERTER
-REF.NO.:2000 SERIES-
XX MARK:NO MOUNT
CN301 7P
J901 BATTERY TERMINAL
IC301
IC301 CXA3057R-T6
CN931 48P
TO VC-234 BOARD CN901
(SEE PAGE 4-33)
CN933 8P
TO PD-117 BOARD CN5701
(SEE PAGE 4-75)
TRV MODEL
VIDEO LIGHT MODEL
16

NO MARK:REC/PB MODE
R :REC MODE
P :PB MODE
( ) :REC/PB MODE(1/4CCD MODEL)

SIGNAL PATH

	REC	REC/PB	PB
Drum servo (speed and phase)		⋙	
Capstan servo (speed and phase)		⋙	

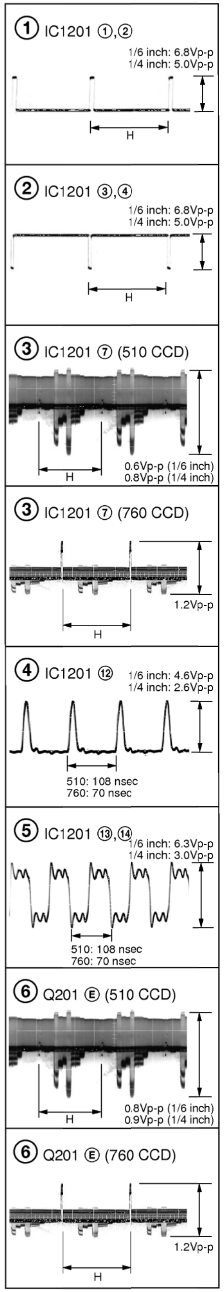
TR MODEL : CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV MODEL : CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
1/6 CCD MODEL : CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E
1/4(A) CCD MODEL : CCD-TR617E/TR717E/TRV57E/TRV67E/TRV87E
1/4(B) CCD MODEL : CCD-TR918E
SUPER NIGHT SHOT MODEL : CCD-TR918E/TRV87E
VIDEO LIGHT MODEL : CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

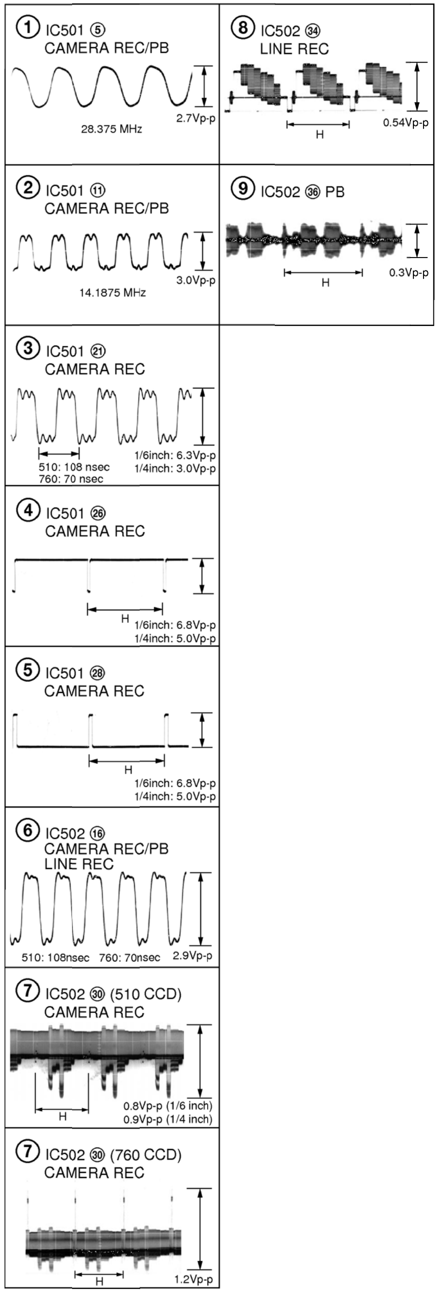
4-3. WAVEFORMS

CD-239/240 BOARD

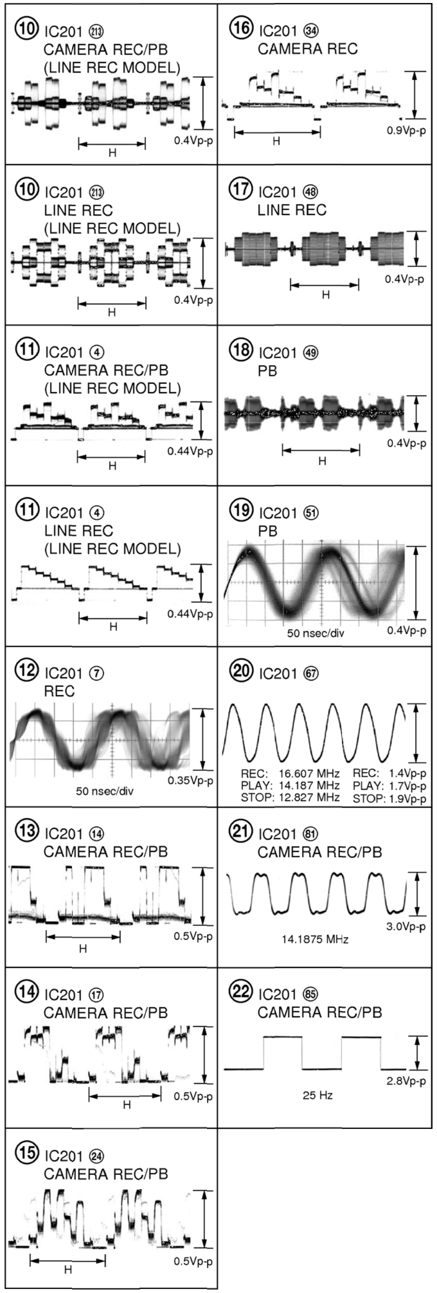
CAMERA REC



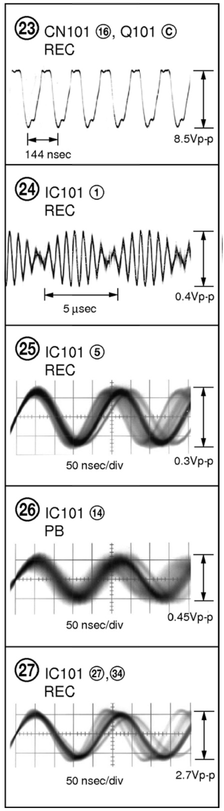
VC-234 BOARD (1/13)



VC-234 BOARD (2/13)

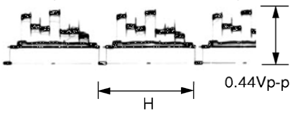


VC-234 BOARD (5/13)

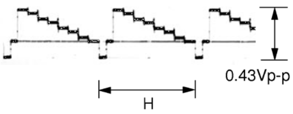


VC-234 BOARD (6/13)

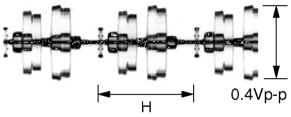
㉘ IC641 ㊹
CAMERA REC/PB
(LINE REC MODEL)



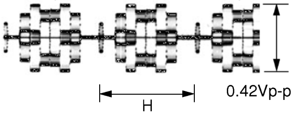
㉘ IC641 ㊹
LINE REC
(LINE REC MODEL)



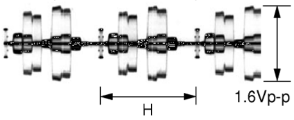
㉙ IC641 ⑤
CAMERA REC/PB
(LINE REC MODEL)



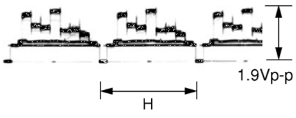
㉙ IC641 ⑤
LINE REC
(LINE REC MODEL)



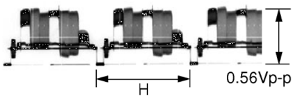
㉚ IC641 ⑭
CAMERA REC/PB
(S VIDEO OUT)



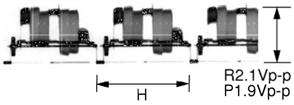
㉛ IC641 ⑱
CAMERA REC/PB
(S VIDEO OUT)



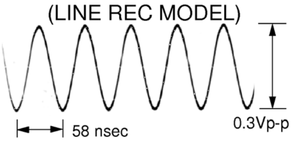
㉜ IC641 ㉔
CAMERA REC/PB
IR ON



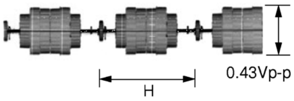
㉝ IC641 ㉒
CAMERA REC/PB
(LINE REC MODEL)



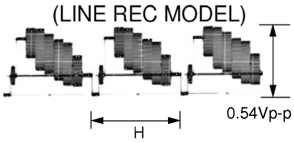
㉞ IC641 ㉘
LINE REC
(LINE REC MODEL)



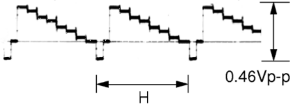
㉟ IC641 ㉞
LINE REC
(LINE REC MODEL)



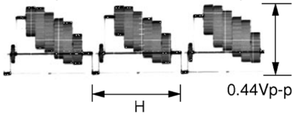
㊱ IC641 ㊱
LINE REC
(LINE REC MODEL)



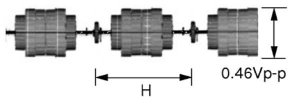
㊲ IC641 ㊴
LINE REC (S-VIDEO IN)
(LINE REC MODEL)



㊳ IC641 ㊷
LINE REC (VIDEO IN)
(LINE REC MODEL)

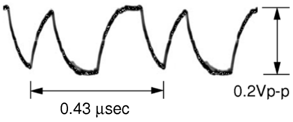


㊴ IC641 ㊽
LINE REC (S-VIDEO IN)
(LINE REC MODEL)

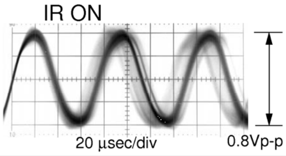


VC-234 BOARD (7/13)

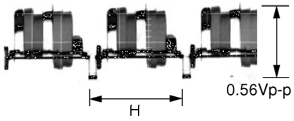
㊵ IC751 ⑦
CAMERA REC/PB



㊶ IC751 ㉒
CAMERA REC/PB
IR ON



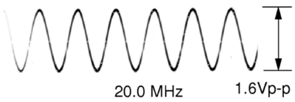
㊷ IC751 ㊶
CAMERA REC/PB
IR ON



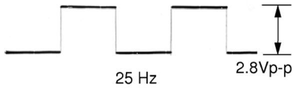
VC-234 BOARD (9/13)

CAMERA REC/PB

㊸ IC902 ①



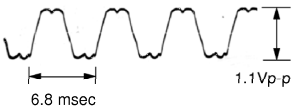
㊹ IC902 ㊼



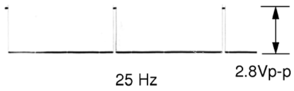
VC-234 BOARD (10/13)

CAMERA REC/PB

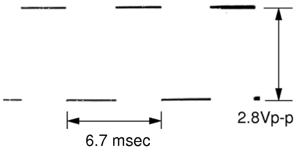
㊺ IC401 ㊼,㊾,(61)



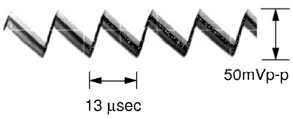
㊻ IC401 ㉒



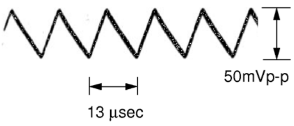
㊼ IC401 ⑯



㊽ IC401 ㉕



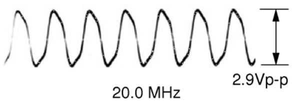
㊾ IC401 ㉘



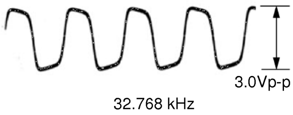
VC-234 BOARD (11/13)

CAMERA REC/PB

㊿ IC803 ㊵

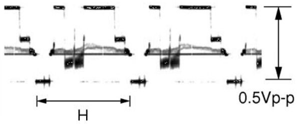


(51) IC803 (53)

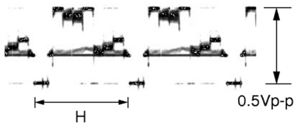


PD-117 BOARD (1/2)

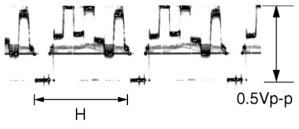
① IC5501 ㊽



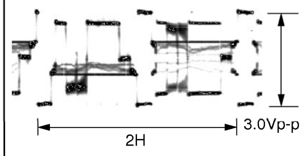
② IC5501 ㊼



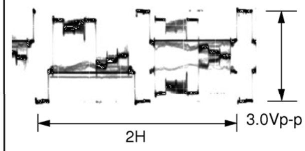
③ IC5501 ㊻



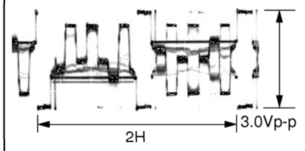
④ IC5501 ⑳



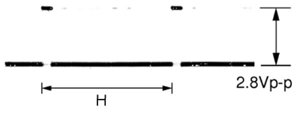
⑤ IC5501 ㉒



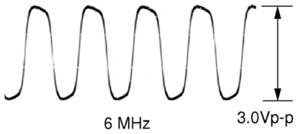
⑥ IC5501 ㉔



⑦ IC5502 ①

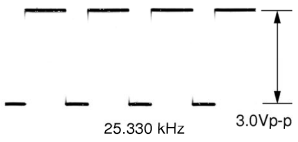


⑧ IC5502 ㉖



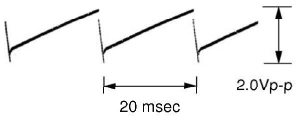
PD-117 BOARD (2/2)

⑨ IC5701 ②

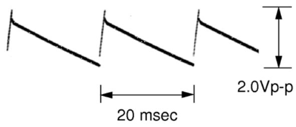


VF-129 BOARD
CAMERA REC/PB

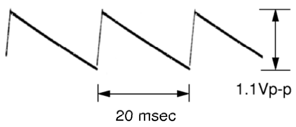
① IC901 ①,⑤



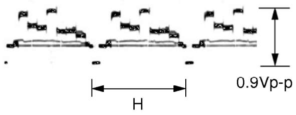
② IC901 ③



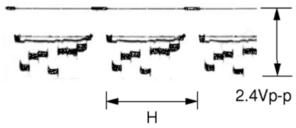
③ IC901 ⑦



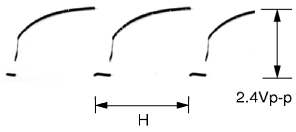
④ IC901 ⑪



⑤ IC901 ⑬

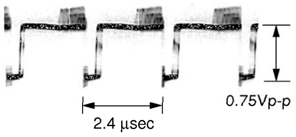


⑥ IC901 ⑯

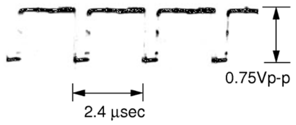


DD-134 BOARD
CAMERA REC/PB

① IC301 (58)



② IC301 (64)



4-4. MOUNTED LOCATION

CD-239/240 BOARD (SIDE A)

C201	A-1
C202	B-1
C203	B-1
C204	A-1
C205	A-1
CN201	B-2
L201	A-2
LND201	A-2
Q201	B-1
R201	B-2
R202	B-1
R203	B-1
R204	A-1

CD-239/240 BOARD (SIDE B)

IC201	A-3

VC-234 BOARD (SIDE A)

C104	A-5
C108	B-4
C109	B-5
C110	B-5
C111	B-5
C112	B-5
C113	A-4
C114	A-5
C115	B-4
C116	B-5
C117	B-5
C118	B-4
C120	B-5
C121	B-4
C123	B-4
C125	C-5
C131	B-4
C133	B-5
C134	B-5
C135	C-5
C136	C-4
C137	B-4
C138	C-4
C139	C-4
C141	B-5
C160	C-4
C206	E-9
C211	E-9
C212	D-8
C216	E-9
C217	D-8
C218	D-6
C219	E-7
C220	D-7
C221	D-7
C222	D-7
C223	E-7
C224	E-8
C225	E-8
C226	E-8
C227	E-8
C228	E-8
C231	D-8
C232	E-8
C236	E-8
C243	E-6
C245	F-6
C246	E-9
C247	F-9
C249	F-6
C250	G-9
C251	G-9
C256	F-6
C259	G-9
C261	G-6
C402	A-8
C410	A-8
C414	A-9
C506	F-5
C508	F-6
C511	F-5
C513	F-5
C514	F-5
C515	F-5
C516	E-5
C517	E-5
C518	E-5
C519	E-5
C520	E-5
C521	E-6
C522	E-6
C523	E-6
C524	E-6
C527	F-5
C528	F-6
C551	G-4
C552	G-4
C554	G-4
C559	F-4
C560	F-4
C562	F-4
C564	F-5
C565	E-4
C566	F-4
C567	F-5
C568	E-4
C570	F-5
C571	F-5
C572	F-4
C573	F-4
C642	C-1
C643	C-2
C650	C-2
C651	C-2
C664	C-1
C671	C-2
C672	C-2
C673	C-2
C701	A-2
C702	A-2
C703	B-2
C704	B-2
C705	A-1
C706	A-1
C707	B-2
C708	A-2
C709	B-1
C710	B-1
C711	B-1
C712	B-1
C713	A-2
C714	B-2
C715	A-1
C716	B-2
C717	A-2
C718	C-3
C719	A-2
C720	B-3
C721	B-2
C722	B-3
C723	A-3
C724	B-3
C725	B-3
C726	C-3
C727	C-3
C728	A-3
C729	B-3
C730	A-3
C731	B-3
C732	B-3
C733	A-3
C734	B-3
C735	A-3
C736	B-3
C737	B-3
C738	B-3
C739	A-3
C740	A-3
C741	A-3
C742	B-3
C743	B-3
C744	B-3
C745	A-3
C746	B-2
C747	B-2
C815	B-8
C817	B-8
C819	D-8
C820	C-7
C821	C-7
C822	D-7
C823	C-7
C824	B-7
C825	C-7
C826	C-7
C901	D-4
C902	D-4
C903	D-4
C904	D-4
C908	E-5
C909	D-5
C910	D-5
C911	C-6
C912	C-6
C913	C-6
C914	D-6
C971	D-9
C972	D-9
CN101	A-4
CN501	E-5
CN551	G-5
CN972	A-1
CN974	A-2
CN975	B-7
CN976	A-6
CN977	F-9
CN978	A-7
CN979	A-8
CN981	B-9
CN983	D-9
D551	G-4
D973	G-9
FB101	A-4
FB102	A-5
FB201	G-6
FB502	F-5
FB503	F-5
FB504	F-6
FB505	F-6
FB641	C-3
IC101	B-4
IC201	F-7
IC202	G-6
IC502	F-6
IC552	F-4
IC701	B-3
IC803	C-8
IC902	D-5
L108	C-4
L203	D-8
L291	C-4
L553	E-5
L642	C-3
L644	C-3
LND101	B-6
LND102	C-6
LND103	C-4
Q101	B-5
Q102	B-5
Q103	B-5
Q104	B-5
Q202	E-6
Q204	E-7
Q205	E-7
Q206	E-7
Q207	E-7
Q208	E-8
Q209	E-8
Q212	E-6
Q401	A-9
Q551	G-4
Q554	E-4
Q641	C-3
Q642	C-2
Q643	C-2
Q644	C-1
Q701	B-1
Q703	B-1
Q704	B-1
Q706	B-1
Q707	A-1
Q709	A-1
Q710	B-2
Q711	B-2
Q712	C-3
Q713	C-3
Q974	D-9
Q975	D-9
R101	A-5
R102	A-5
R105	B-5
R110	B-5
R111	B-5
R112	B-5
R113	B-5
R114	B-4
R115	B-5
R116	B-5
R117	B-5
R120	B-4
R121	B-5
R122	C-5
R127	B-4
R128	C-4
R201	E-9
R202	E-9
R206	E-6
R207	E-6
R208	E-8
R209	E-9
R210	E-7
R211	E-7
R212	E-7
R213	E-7
R214	E-8
R215	E-8
R216	E-7
R217	E-7
R218	E-7
R219	E-7
R220	E-8
R221	E-8
R225	E-8
R226	E-9
R228	E-9
R230	E-8
R231	E-8
R233	E-8
R234	E-6
R235	E-6
R236	D-7
R237	E-7
R238	D-7
R239	E-7
R240	E-7
R241	D-7
R242	D-7
R243	E-7
R244	E-7
R245	D-7
R246	D-8
R247	E-8
R248	D-8
R249	E-8
R250	E-8
R254	E-6
R255	E-6
R256	E-6
R257	E-6
R258	G-9
R259	F-9
R263	G-9
R273	G-9
R282	G-9
R401	A-7
R402	A-7
R403	A-3
R404	A-3
R405	A-7
R406	A-3
R407	A-8
R411	A-9
R414	A-8
R416	A-9
R432	A-8
R436	A-8
R504	F-5
R505	F-5
R506	F-6
R508	F-6
R509	F-5
R515	E-6
R516	E-6
R517	E-6
R551	G-4
R552	E-4
R553	G-4
R554	F-4
R555	G-5
R556	F-4
R557	G-5
R560	E-4
R561	F-4
R562	F-4
R563	F-4
R564	F-4
R565	F-4
R566	F-4
R567	G-4
R568	F-4
R569	F-4
R570	F-4
R571	F-4
R572	F-5
R573	F-4
R574	E-4
R575	E-4
R576	E-4
R577	E-4
R578	E-5
R641	C-2
R642	C-2
R643	C-1
R644	C-2
R645	C-2
R646	C-1
R647	C-2
R649	C-1
R703	A-2
R705	B-1
R706	B-1
R707	A-2
R707	A-2
R708	A-2
R710	B-2
R711	B-2
R712	A-2
R713	A-3
R714	B-3
R715	B-3
R716	A-3
R717	A-3
R718	B-3
R720	A-3
R721	B-2
R722	B-2
R723	B-2
R724	B-2
R725	B-1
R726	B-1
R727	B-2
R728	C-3
R729	B-2
R730	B-3
R731	C-3
R732	B-3
R813	C-8
R814	C-8
R815	C-8
R816	C-8
R817	C-8
R818	C-8
R819	D-8
R820	B-8
R821	C-8
R822	C-8
R825	C-8
R831	D-8
R832	D-8
R834	B-8
R837	D-8
R838	D-8
R839	D-8
R840	D-8
R843	B-8
R844	B-8
R845	B-8
R847	D-8
R848	B-8
R849	D-8
R866	D-7
R867	D-7
R868	B-8
R869	B-7
R870	B-7
R871	D-7
R872	D-7
R873	D-7
R874	B-7
R875	B-7
R876	C-7
R877	C-7
R878	C-7
R879	B-7
R880	B-7
R881	C-7
R882	C-7
R887	B-7
R888	C-7
R889	C-7
R890	C-7
R891	C-7
R892	C-8
R901	D-4
R902	D-4
R903	D-5
R905	D-5
R906	C-5
R907	C-5
R908	C-4
R909	C-5
R910	C-5
R911	C-5
R991	D-9
R912	D-5
R915	C-5
R916	E-5
R917	D-5
R918	C-6
R919	C-6
R920	C-6
R922	D-6
R923	D-6
R924	D-6
R925	D-6
R930	D-6
R931	D-6
R932	D-6
R933	D-6
R934	D-6
R973	F-9
R974	F-9
R984	D-9
R985	D-6
R986	D-6
R987	D-9
R988	D-6
R989	D-6
R990	D-9
X801	D-8
X802	D-7
X901	E-5

VC-234 BOARD (SIDE B)

C101	A-14	C436	A-11			Q804	D-12	R503	F-14
C102	A-15	C501	F-14	CN971	A-18	Q805	C-11	R512	F-13
C103	B-14	C502	E-14	CN973	G-15	Q806	C-11	R518	F-14
C105	A-15	C503	F-14	CN980	F-10	Q972	F-10	R519	E-14
C106	B-15	C504	F-14	CN982	D-10	Q973	F-10	R558	F-15
C107	B-14	C505	F-13					R559	F-15
C119	A-15	C507	F-13	D201	E-11	R103	B-14	R648	C-18
C126	B-15	C509	F-13	D202	E-10	R104	B-15	R650	C-16
C128	B-15	C510	G-13	D203	F-13	R106	B-14	R651	C-17
C130	B-14	C512	F-13	D401	B-10	R107	B-15	R652	C-16
C142	B-14	C525	F-14	D501	F-13	R108	B-15	R653	C-18
C143	A-15	C526	E-14	D502	E-14	R109	B-14	R655	B-17
C145	A-16	C553	E-15	D801	B-12	R129	A-15	R656	B-17
C146	B-14	C556	E-15	D802	B-12	R130	A-16	R657	B-17
C147	A-16	C561	F-15	D803	D-12	R131	A-15	R658	B-17
C148	B-15	C569	F-15	D804	C-11	R132	A-16	R719	B-16
C149	B-16	C641	C-16	D805	B-11	R133	B-14	R755	B-17
C150	B-16	C644	C-16	D971	G-15	R134	A-16	R756	B-16
C151	B-15	C645	C-18	D972	G-15	R135	B-14	R757	A-16
C152	B-15	C646	C-17			R136	A-15	R758	A-17
C153	B-16	C647	C-16	FB103	B-16	R137	A-16	R759	A-17
C154	A-16	C648	C-17	FB104	B-16	R138	B-15	R760	B-17
C155	A-16	C649	C-17	FB202	E-13	R139	B-16	R761	A-17
C156	C-15	C652	C-17	FB203	F-12	R140	B-16	R762	A-18
C157	B-15	C653	C-17	FB204	F-12	R141	B-15	R763	A-17
C158	C-15	C654	C-17	FB205	E-12	R142	B-15	R764	B-17
C159	C-15	C655	C-17	FB207	E-12	R143	B-16	R765	B-17
C201	D-11	C656	C-16	FB291	D-15	R144	B-16	R766	A-17
C202	D-11	C657	C-18	FB501	E-13	R145	B-16	R767	B-18
C203	E-10	C658	D-15	FB505	E-14	R146	C-15	R768	A-18
C207	E-12	C659	C-18	FB801	C-12	R147	C-15	R770	A-18
C210	E-11	C660	C-18	FB901	D-13	R148	B-15	R771	A-18
C213	E-11	C661	C-18			R149	B-15	R772	A-18
C233	E-12	C662	B-18	IC102	B-16	R150	B-15	R773	A-18
C234	E-12	C663	B-17	IC203	F-12	R151	B-15	R774	A-18
C237	E-11	C665	B-17	IC204	G-10	R152	B-15	R775	B-18
C238	E-11	C666	B-17	IC205	E-10	R153	B-15	R776	A-17
C239	E-13	C667	B-17	IC291	D-15	R155	C-15	R777	A-17
C240	E-13	C668	B-17	IC401	A-11	R156	C-15	R801	C-11
C241	E-10	C669	B-17	IC501	F-14	R204	E-11	R802	C-11
C242	E-10	C704	B-17	IC551	F-15	R205	E-11	R803	D-12
C244	F-10	C751	A-17	IC641	C-17	R222	G-12	R805	C-11
C252	G-10	C752	A-17	IC751	A-17	R223	G-12	R806	C-11
C253	G-12	C752	A-17	IC801	C-12	R224	E-11	R807	C-11
C254	E-12	C753	A-17	IC802	B-11	R229	E-11	R808	C-12
C255	E-12	C754	A-17	IC901	D-14	R232	E-11	R809	C-11
C257	G-12	C755	A-17			R251	E-11	R810	C-11
C258	F-12	C756	A-18	L101	A-14	R252	E-11	R811	D-12
C260	G-11	C758	A-17	L102	B-14	R253	E-10	R812	C-11
C262	F-13	C759	B-17	L103	A-15	R260	G-10	R823	C-11
C263	G-11	C760	B-17	L104	B-14	R261	G-12	R824	B-12
C265	G-11	C761	B-17	L105	A-16	R262	G-12	R833	B-11
C266	G-11	C762	B-17	L107	C-15	R264	F-13	R835	B-12
C291	C-15	C763	B-17	L204	E-13	R265	E-12	R836	B-11
C292	C-15	C765	A-17	L205	E-13	R266	E-11	R865	C-11
C293	D-15	C766	A-18	L206	D-11	R270	F-13	R886	B-12
C401	B-11	C767	B-17	L208	E-13	R271	E-12	R904	D-14
C403	B-12	C768	B-18	L209	F-10	R274	G-10	R913	E-14
C404	B-12	C769	A-18	L501	E-13	R275	F-11	R914	E-14
C405	B-12	C770	A-18	L551	E-15	R276	F-10	R921	D-13
C406	B-11	C771	B-18	L552	E-15	R277	F-10	R935	E-14
C407	B-11	C772	A-18	L641	C-16	R278	D-13	R971	G-14
C408	B-10	C773	B-18	L643	C-18	R279	F-10	R972	G-15
C409	A-12	C774	A-18	L751	B-18	R280	E-12	R975	G-10
C411	A-12	C775	A-17	L752	B-17	R283	G-13	R976	F-10
C412	A-12	C777	A-18	L753	B-18	R408	B-12	R977	C-12
C413	B-12	C778	A-18	L754	A-18	R409	B-12	R978	B-12
C415	B-11	C781	A-18			R410	B-12	R979	C-13
C416	B-11	C782	A-16	Q105	B-14	R412	B-11	R980	B-12
C417	B-12	C801	C-11	Q106	B-14	R413	B-11	R981	B-12
C418	B-11	C802	C-12	Q107	A-15	R417	A-11	R982	D-10
C419	A-12	C803	C-11	Q108	A-15	R419	A-11	R983	D-10
C420	B-11	C804	B-11	Q109	B-15	R423	A-11	R992	B-13
C421	B-12	C805	B-11	Q110	B-15	R424	A-11	R993	B-12
C422	A-11	C806	C-12	Q111	C-15	R425	A-12	R995	B-12
C423	A-11	C807	C-11	Q112	A-14	R426	A-12	R997	B-11
C424	A-12	C809	B-11	Q113	A-14	R427	A-11	R998	C-13
C425	A-11	C810	B-11	Q203	E-11	R428	A-12		
C427	A-11	C811	B-11	Q211	E-11	R429	A-12	X501	F-13
C428	A-12	C813	B-11	Q213	E-12	R430	A-11	X641	B-18
C429	A-12	C814	B-11	Q214	G-10	R431	A-11		
C430	A-12	C818	B-11	Q552	F-15	R433	A-11		
C431	A-11	C907	D-13	Q553	F-15	R434	A-12		
C433	A-11	C915	D-13	Q801	C-11	R435	A-12		
C434	A-11	C973	G-15	Q802	C-11	R501	E-14		
C435	A-11	C974	G-15	Q803	C-11	R502	E-14		

CF-66 BOARD (SIDE A)

C001	B-6	R013	B-3
C002	B-6	R014	B-2
C003	C-5	R015	C-3
C004	C-4	R016	B-4
C008	D-6	R017	B-4
		R018	B-2
CN010	D-5	R019	C-3
		R020	B-4
D001	A-1	R021	C-2
D003	D-8	R025	C-2
D004	B-4	R032	B-1
D005	B-6	R033	B-1
D006	A-6	R038	D-4
D007	B-7	R039	D-4
D008	D-6	R040	C-4
D009	C-6	R041	C-4
		R042	C-6
IC001	C-5	R043	C-6
		R044	D-6
L001	D-4	R045	D-6
L004	C-6	R046	D-6
L005	B-6	R047	D-6
Q001	D-4	S001	B-4
Q002	D-6	S002	D-8
Q003	C-6	S003	B-5
		S005	D-8
R001	D-4	S008	B-9
R002	D-6	S009	B-1
R003	C-6	S010	B-3
R004	D-6	S011	D-9
R009	D-6	S012	C-1
R010	D-6	S014	B-5
R011	C-5	S015	B-6
R012	B-4	S016	B-7

CF-66 BOARD (SIDE B)

BH001	B-13	R005	B-15
		R006	B-16
BZ001	B-17	R007	B-16
BZ002	C-17	R008	B-16
		R022	C-16
C005	D-13	R023	C-16
C006	D-12	R026	C-16
C007	D-11	R027	D-12
C009	C-15	R028	D-12
		R029	D-12
CN001	C-13	R030	D-12
CN002	A-18	R034	C-16
CN006	D-13	R035	D-12
CN007	D-15	R036	D-12
CN008	C-16	R037	D-11
		R048	D-16
D002	C-12		
		S006	C-11
L002	D-13	S007	D-11
L003	D-11		
Q004	D-12		
Q005	D-12		
Q006	D-12		

CF-67 BOARD (SIDE A)

BH001	D-5
D001	A-1
D004	A-4
D007	A-5
LND001	A-6
R002	A-4
R004	B-4
R006	A-4
R008	B-4
R013	B-5
R014	A-5
R017	A-5
R019	B-6
R020	A-3
R022	B-6
R027	B-5
R036	B-5
R043	C-1
S001	A-3
S002	B-3
S004	A-5
S005	B-4
S006	B-6
S008	B-6
S009	A-7
S011	A-6
S012	B-3
S014	B-5

CF-67 BOARD (SIDE B)

C001	D-12
C002	D-10
C003	D-10
C004	D-12
C005	C-13
C006	C-12
C007	D-12
C008	C-13
C009	C-12
CN001	B-11
CN002	A-14
CN003	D-11
CN004	C-14
CN005	B-14
CN006	D-12
CN007	C-12
CN008	D-13
CN009	B-13
D002	D-11
D003	B-9
D005	D-10
D006	D-10
D008	D-11
D009	D-10
JL001	C-11
JL002	D-11
L001	D-12
L002	C-13
L003	D-12
LND002	A-13
Q001	B-13
Q002	C-10
Q003	C-10
Q004	C-13
Q005	C-12
Q006	D-12
R001	C-13
R003	C-9
R005	C-9
R007	B-9
R009	C-10
R010	C-10
R011	C-10
R012	C-9
R015	C-10
R016	C-10
R018	C-9
R021	D-9
R023	C-13
R024	D-12
R026	D-9
R028	C-13
R029	C-13
R030	D-12
R031	D-12
R032	C-13
R034	D-9
R035	D-9
R037	C-13
R038	C-13
R039	C-12
R040	C-12
R041	C-12
R042	C-13
R044	C-13
R048	C-12
S003	C-8
S007	C-8
S010	D-8
S013	E-8

EJ-29/30 BOARD (SIDE A)

J251	B-4

EJ-29/30 BOARD (SIDE B)

CN251	A-8
CN252	B-8
CN253	A-7
D251	B-6
D252	A-6
D253	B-6
D254	A-7
D255	B-7
D256	B-6
D257	B-6
FB251	B-6
FB252	A-6
FB253	B-6
LND251	A-6
R251	B-8
R252	B-8
R253	B-7
R254	B-7
R255	A-7
R256	A-7
R256	B-8
R257	A-8
R259	B-7
S251	B-7

PJ-99/100 BOARD (SIDE A)

J101	C-1

PJ-99/100 BOARD (SIDE B)

C101	C-4
C102	D-4
C103	B-4
C104	A-3
C105	B-3
C106	B-4
C107	E-3
C108	E-4
CN101	C-3
D101	D-4
D102	E-4
D103	E-4
D104	E-3
D105	B-4
L101	C-3
L102	C-4
L104	B-3
L105	B-3
LND101	B-4
Q101	E-3
Q102	D-3
R102	D-3
R103	D-4
R104	D-3
R105	D-3
R108	E-4
R109	C-3
VDR101	C-4
VDR102	A-3

SE-100/101 BOARD (SIDE A)

C453	C-3
C454	D-3
C460	C-3
C465	A-2
C466	A-2
CN451	A-3
J451	A-2
L451	B-3
L452	A-3
L453	A-2
R461	A-3
SE451	C-3
SE452	E-4
VDR451	A-3
VDR452	A-2

SE-100/101 BOARD (SIDE B)

C451	B-6
C452	D-7
C455	C-7
C456	C-7
C457	C-7
C459	C-7
C461	D-6
C462	B-7
C463	C-6
C464	B-7
IC451	C-7
LND451	A-7
R451	B-6
R452	D-7
R453	D-7
R454	B-6
R455	C-6
R456	C-7
R457	C-7
R458	C-6
R459	C-6
R460	B-7

VL-29 BOARD (SIDE A)

C151	A-2
C153	A-2
D151	A-2
D152	A-2
L151	A-2
Q151	A-2
R153	A-2
R154	A-2

VL-29 BOARD (SIDE B)

C152	A-3
CN151	A-3
D153	A-4
LND151	B-4
LND152	B-4
LND153	A-4
LND154	B-3
LND155	B-3
Q152	A-3
R151	A-3
R152	A-3

MA-374/375 BOARD (SIDE A)

C306	B-4
C323	C-2
C324	C-2
C326	C-2
C329	C-2
C333	C-2
C336	B-2
C339	C-2
C340	C-2
C341	C-3
C342	B-2
C343	D-2
C344	D-2
C345	D-2
C346	D-2
C347	D-2
C348	D-2
C353	B-3
C354	B-3
C356	B-3
C357	E-2
C359	B-4
C360	B-3
C365	D-2
D302	A-3
D303	A-3
D304	B-2
D305	B-4
D306	B-3
D307	E-2
D321	C-2
D322	C-2
IC301	A-4
IC322	B-3
J321	B-1
LND301	A-3
Q322	B-2
R321	C-2
R322	B-2
R324	B-2
R325	C-2
R326	C-2
R329	C-2
R330	C-2
R334	C-2
R340	B-2
R342	C-2
R343	C-2
R344	C-2
R345	C-3
R346	B-3
R347	B-2
R348	C-2
R349	C-2
R350	D-2
R351	D-2
R352	D-2
R353	D-2
R354	D-2
R355	D-2
R358	B-3
R359	D-2
R361	D-2
R362	D-2
R363	C-2
S301	D-1

MA-374/375 BOARD (SIDE B)

C301	A-7
C302	B-6
C303	A-7
C304	A-6
C305	B-7
C321	A-8
C322	C-7
C325	C-7
C327	C-8
C328	C-8
C330	C-7
C331	C-8
C332	C-9
C334	C-7
C335	C-9
C337	C-7
C338	C-9
C349	C-7
C351	D-8
C352	D-8
C355	D-8
C358	B-6
C361	D-8
C362	C-8
C363	C-8
C364	C-8
CN301	B-7
CN302	B-8
D323	A-8
F301	A-7
IC321	C-8
L301	B-7
Q301	A-6
Q302	A-6
Q303	B-6
Q304	B-7
Q321	C-7
R301	A-6
R302	A-6
R303	B-6
R304	A-6
R305	A-6
R306	A-7
R307	B-6
R308	B-7
R309	B-7
R310	B-6
R311	B-6
R312	A-8
R313	B-6
R314	D-8
R315	E-8
R323	B-8
R327	C-7
R328	C-7
R331	C-8
R332	C-7
R333	C-7
R335	C-7
R336	C-9
R337	C-7
R338	C-7
R339	C-9
R356	D-8
R357	D-8
R360	D-8
R364	D-8
R365	D-8
S302	D-8
S303	C-6

PD-117 BOARD (SIDE A)

C5502	B-4
C5504	C-4
C5505	A-5
C5506	A-5
C5507	A-5
C5515	C-4
C5516	C-4
C5520	B-5
C5521	B-3
C5522	B-3
C5523	D-4
C5524	B-4
C5528	B-4
C5530	C-5
C5531	C-5
C5706	C-3
C5707	C-3
C5708	C-3
C5709	D-3
C5710	D-3
CN5501	D-5
CN5502	B-5
CN5604	D-1
CN5701	A-2
CN5702	A-5
CN5703	A-1
CN5704	A-3
CN5705	A-3
CN5706	D-3
D5502	C-4
FB5502	A-4
IC5502	C-4
IC5503	C-4
IC5702	C-3
L5505	C-4
L5601	D-2
L5702	C-3
LND701	D-2
LND702	B-1
Q5502	B-4
Q5503	C-5
Q5504	C-5
Q5505	C-5
Q5506	C-5
Q5607	D-1
R5512	C-4
R5513	C-4
R5516	B-5
R5517	C-5
R5521	C-5
R5553	C-5
R5559	C-4
R5561	B-3
R5562	C-5
R5563	B-3
R5563	C-5
R5564	C-5
R5565	C-5
R5566	D-5
R5567	C-5
R5569	B-5
R5702	A-5
R5715	D-3
R5716	C-3
T5601	C-1

PD-117 BOARD (SIDE B)

C5501	A-8
C5503	A-7
C5508	C-8
C5509	B-8
C5510	B-7
C5511	B-8
C5512	B-8
C5513	B-7
C5514	B-8
C5517	B-7
C5518	B-7
C5519	B-8
C5525	A-8
C5526	A-8
C5527	B-7
C5529	C-8
C5601	C-9
C5604	B-10
C5605	D-10
C5606	D-10
C5608	B-10
C5612	B-10
C5704	B-9
D5501	C-8
D5503	C-8
D5601	D-10
D5602	D-11
D5603	A-11
D5604	A-10
D5701	C-9
FB5503	B-8
IC5501	B-8
IC5601	C-9
IC5602	D-10
IC5701	B-9
L5501	A-8
L5504	B-8
L5701	B-10
LND703	B-11
LND704	D-10
LND705	A-11
Q5501	C-8
Q5601	C-9
Q5602	C-10
Q5603	D-10
Q5604	D-10
Q5701	C-9
R5501	A-7
R5502	A-8
R5503	A-8
R5504	C-8
R5505	B-7
R5506	B-8
R5507	B-8
R5508	B-8
R5509	B-8
R5510	B-8
R5511	B-8
R5514	C-7
R5515	C-7
R5518	C-7
R5519	D-8
R5520	D-8
R5522	C-7
R5523	C-7
R5524	C-7
R5525	C-7
R5551	C-8
R5557	A-8
R5558	B-8
R5560	C-8
R5603	C-9
R5609	C-9
R5610	C-10
R5611	C-10
R5612	D-10
R5613	C-10
R5614	C-9
R5616	D-10
R5617	D-10
R5618	D-10
R5619	A-11
R5620	A-10
R5704	D-7
R5706	C-7
R5707	A-7
R5708	A-7
R5710	A-10
R5711	A-9
R5712	B-9
R5713	A-8
R5714	A-9
R5717	D-9
S5701	D-7
S5702	C-7
S5703	B-7
S5704	A-7

VF-129 BOARD (SIDE A)

C903	A-2
C904	B-2
C906	A-2
C907	A-1
C909	B-1
C913	A-2
CN902	B-1
D901	A-1
IC901	A-1
L901	B-1
L903	D-1
R903	A-1
R907	B-1
R908	B-2
R909	B-2
R910	B-2
R912	A-2
R913	C-2
R914	C-2
R915	B-1
R916	A-1
R917	A-1
R922	E-1
R927	B-1
R928	B-1
R929	A-1
R930	C-1
R931	C-1
R932	C-1
RV903	C-2
RV904	D-1
T901	D-1
T902	D-1
TH901	B-2
W901	D-2

VF-129 BOARD (SIDE B)

C901	A-3
C902	A-3
C905	A-3
C908	C-2
C910	C-3
C911	C-3
C912	B-3
C914	D-3
C915	E-3
C916	C-3
CN901	B-3
D903	D-3
L902	B-3
Q901	A-2
Q902	B-2
Q903	C-3
Q904	C-2
R901	A-3
R902	A-3
R904	A-3
R905	A-2
R906	A-2
R911	A-3
R918	C-2
R919	C-2
R920	C-2
R921	D-2
R923	E-3
R924	C-3
R925	C-3
R926	D-2

DD-134 BOARD (SIDE A)

C306	C-1
C307	B-1
C310	C-3
C321	D-3
C327	D-2
C335	B-2
C339	D-3
C344	A-2
C345	A-2
C349	A-2
C350	A-2
C352	C-3
C355	A-1
C358	A-3
C360	A-3
C361	A-1
C363	A-1
C364	A-3
CN301	C-1
D301	B-1
D302	B-1
D304	C-1
D305	C-3
D306	C-2
D308	B-2
D309	A-2
D310	A-2
D311	A-2
D312	B-2
D313	B-2
F302	D-2
F303	D-3
F304	D-3
F305	D-3
F306	D-2
FB321	A-1
L301	B-3
L302	C-2
L304	B-3
L305	C-3
L306	C-3
L318	C-3
L319	A-1
LND302	A-2
LND308	B-2
Q301	C-3
Q302	C-2
Q303	C-2
Q304	D-2
Q305	C-1
Q316	D-3
Q322	A-3
Q323	B-3
Q325	B-3
Q327	B-1
Q328	B-1
Q329	A-3
Q330	A-2
Q331	A-3
Q332	B-1
Q333	A-3
R303	B-1
R309	C-3
R310	C-3
R313	C-2
R316	D-2
R317	D-2
R319	D-2
R329	A-3
R332	A-2
R333	A-3
R334	A-2
R336	B-3
R337	A-3
R338	A-3
R339	A-1
R340	A-2
R341	A-3
R342	A-1
R343	A-2
R344	B-1
R345	B-1
R346	B-1
R347	A-3
R348	A-3
R349	A-3
R350	A-3
T301	B-2

DD-134 BOARD (SIDE B)

C301	D-6
C302	D-6
C303	D-5
C304	D-5
C305	D-5
C308	D-5
C309	D-6
C311	D-6
C312	C-5
C313	C-6
C314	C-5
C315	C-6
C316	C-5
C317	C-6
C318	C-5
C323	C-6
C324	C-5
C325	C-5
C326	C-5
C328	B-6
C329	B-5
C330	B-5
C331	D-6
C332	B-5
C333	B-6
C336	B-5
C337	C-5
C338	B-5
C340	C-6
C341	C-6
C342	A-6
C343	C-6
C346	A-5
C347	B-6
C348	A-6
C351	B-6
C353	A-6
C354	A-5
C356	A-5
C362	A-6
C367	D-5
C366	A-6
CN933	A-7
D307	D-6
D314	D-6
FB310	C-6
FB320	A-7
IC301	C-5
L303	C-6
L307	B-6
L308	B-6
L309	B-6
L313	A-5
L314	A-5
L315	A-6
L316	A-5
L317	A-6
Q306	D-6
Q307	B-6
Q308	B-5
Q309	C-5
Q310	B-6
Q311	B-5
Q312	C-5
Q313	C-6
Q315	C-6
Q317	A-6
Q318	A-5
Q319	A-5
Q321	A-6
R301	D-6
R302	D-5
R304	C-6
R305	D-5
R306	D-6
R307	C-4
R311	D-6
R312	C-5
R314	C-6
R315	C-5
R318	C-6
R320	D-6
R321	D-6
R322	C-6
R323	A-5
R324	A-6
R325	A-6
R326	A-6
R327	A-5
R328	A-5
R330	D-6
R331	C-5
R335	D-6
R353	D-5
R354	D-5
R355	D-6
R356	B-6
R357	A-6
R358	A-6

SECTION 5
ADJUSTMENTS

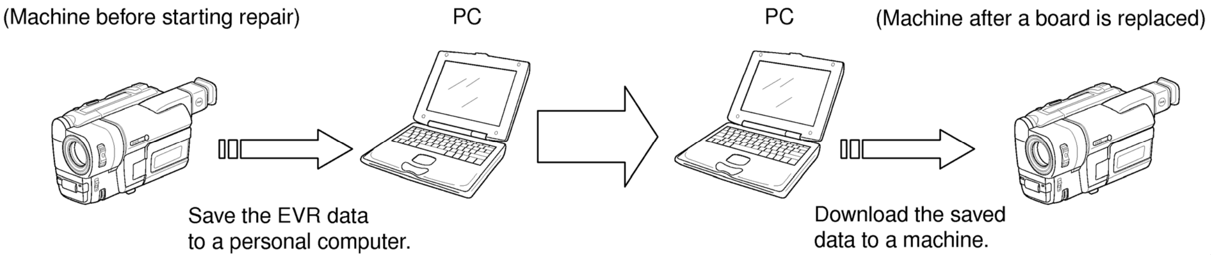
1. Before starting adjustment

EVR Data Re-writing Procedure When Replacing Board

The data that is stored in the repair board, is not necessarily correct.
Perform either procedure 1 or procedure 2 or procedure 3 when replacing board.

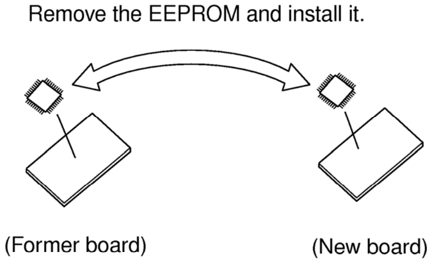
Procedure 1

Save the EVR data of the machine in which a board is going to be replaced. Download the saved data after a board is replaced.


(Machine before starting repair)
PC
PC
(Machine after a board is replaced)
Save the EVR data
to a personal computer.
Download the saved
data to a machine.

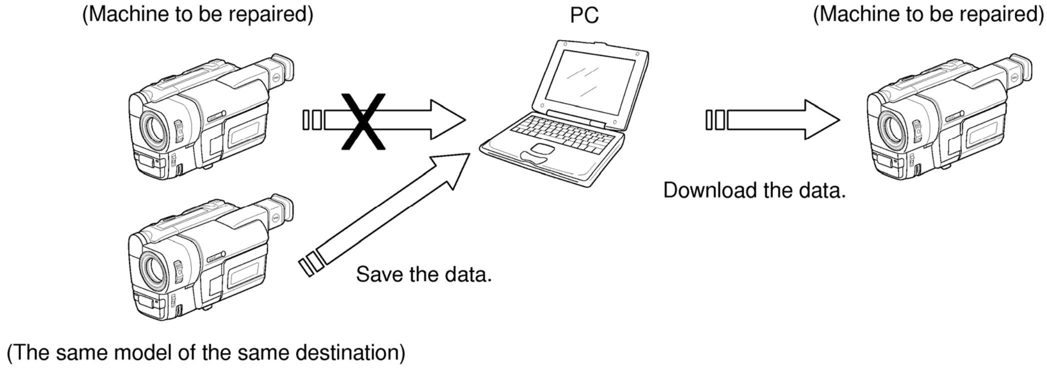
Procedure 2

Remove the EEPROM from the board of the machine that is going to be repaired. Install the removed EEPROM to the replaced board.


Remove the EEPROM and install it.
(Former board)
(New board)

Procedure 3

When the data cannot be saved due to defective EEPROM, or when the EEPROM cannot be removed or installed, save the data from the same model of the same destination, and download it.


(Machine to be repaired)
PC
(Machine to be repaired)
X
Download the data.
Save the data.
(The same model of the same destination)

After the EVR data is saved and downloaded, check the respective items of the EVR data.
(Refer to page 5-3 for the items to be checked.)

1-1. Adjusting items when replacing main parts and boards.

• Adjusting items when replacing main parts

When replacing main parts, adjust the items indicated by ● in the following table.

Adjustment Section	Adjustment	Replaced parts																				
		Block replacement							Parts replacement													
		Lens device	Mechanism deck	LCD901 (LCD panel) LCD block (*1)	ND901 (Fluorescent tube) LCD block (*1)	V901 (Picture tube) B/W EVF block	M901 (Drum assy) Mechanism deck	M902 (Capstan motor) Mechanism deck	IC201 (CCD imager) CD-239/240 board	IC5501 (RGB decoder (LCD)) PD-117 board (*1)	IC5502 (Timing generator (LCD)) PD-117 board (*1)	SE451,452 (PITCH,YAW sensor) SE-100/101 board (*3)	IC501, X501 (Timing generator) VC-234 board	IC502 (S/H, AGC, A/D conv.) VC-234 board	IC201 (Y, C process) VC-234 board	IC205 (VCO) VC-234 board	IC641 (Y, C IN/OUT) VC-234 board	IC101 (REC/PB AMP) VC-234 board	IC751 (IR transmitter) VC-234 board (*4)	IC701 (AFM Audio process) VC-234 board	IC901 (CRT driver) VF-129 board	T901 (FBT) VF-129 board
Initialization of D, E, F, 7 page data	Initialization of D, E, F, 7 page data																					
Camera	Hall adj.	●																				
	Flange back adj.	●							●													
	Color reproduction adj.								●					●								
	AWB & LV standard data input								●					●								
	Auto white balance adj.								●					●								
	Steady shot check (*3)											●										
B/W EVF	Centering adj.					●															●	●
	Focus adj.					●															●	●
	Aberration adj.					●															●	●
	Horizontal amplitude adj.					●															●	●
	Vertical amplitude adj.					●															●	●
	Brightness adj.					●															●	●
LCD (*1)	LCD Initial data input																					
	VCO adj.										●											
	RGB AMP adj.									●												
	Contrast adj.									●												
	COM AMP adj.									●												
	V-COM adj.			●						●												
	White balance adj.			●	●					●												
Servo	CAP FG offset adj.		●					●														
	Switching position adj.		●				●															
Video	28MHz origin oscillation adj.												●									
	AFC f_0 adj.														●	●						
	Filter f_0 adj.																●					
	Y OUT level adj.														●		●					
	C OUT level adj.														●		●					
	REC Y current adj.														●			●				
	REC C/AFM current adj.														●			●				
IR (*4)	IR video carrier frequency adj.																●		●			
	IR video deviation adj.																●		●			
	IR audio deviation adj.																		●			
Audio	1.5MHz deviation adj.																			●		
	1.7MHz deviation adj. (*2)																			●		
	BPF f_0 adj.																			●		
Mechanism	Tape path adj.		●				●	●														

Table. 5-1-1(1).

• Adjusting items when replacing a board or EEPROM

When replacing a board or EEPROM, adjust the items indicated by ● in the following table.

*1: TRV model (CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E) only.
*2: STEREO model (CCD-TR918E/TRV87E) only.
*3: STEADY SHOT model (CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E) only.
*4: LASER LINK model (CCD-TR918E/TRV87E) only.

Adjustment Section	Adjustment	Replaced parts				
		Board replacement				
		SE-100/101 board (*3) (COMPLETE)	VC-234 board (COMPLETE)	PD-117 board (*1) (COMPLETE)	VF-129 board (COMPLETE)	VC-234 board IC901 (EEPROM)
Initialization of D, E, F, 7 page data	Initialization of D, E, F, 7 page data					●
Camera	Hall adj.		●			●
	Flange back adj.		●			●
	Color reproduction adj.		●			●
	AWB & LV standard data input		●			●
	Auto white balance adj.		●			●
	Steady shot check (*3)	●	●			●
B/W EVF	Centering adj.				●	
	Focus adj.				●	
	Aberration adj.				●	
	Horizontal amplitude adj.				●	
	Vertical amplitude adj.				●	
	Brightness adj.				●	
LCD (*1)	LCD Initial data input		●			●
	VCO adj.		●	●		●
	RGB AMP adj.		●	●		●
	Contrast adj.		●	●		●
	COM AMP adj.		●	●		●
	V-COM adj.		●	●		●
	White balance adj.		●	●		●
Servo	CAP FG offset adj.		●			●
	Switching position adj.		●			●
Video	28MHz origin oscillation adj.					●
	AFC f_0 adj.					●
	Filter f_0 adj.					●
	Y OUT level adj.					●
	C OUT level adj.					●
	REC Y current adj.					●
	REC C/AFM current adj.					●
IR (*4)	IR video carrier frequency adj.					●
	IR video deviation adj.					●
	IR audio deviation adj.					●
Audio	1.5MHz deviation adj.					●
	1.7MHz deviation adj. (*2)					●
	BPF f_0 adj.					●
Mechanism	Tape path adj.					

Table. 5-1-1(2).

5-1. CAMERA SECTION ADJUSTMENT

1-1. PREPARATIONS BEFORE ADJUSTMENT (CAMERA SECTION)

1-1-1. List of Service Tools

- Oscilloscope
- Regulated power supply
- Color monitor
- Digital voltmeter
- Vectorscope

Ref. No.	Name	Parts Code	Usage
J-1	Filter for color temperature correction (C14)	J-6080-058-A	Auto white balance adjustment/check White balance adjustment/check
J-2	ND filter 1.0	J-6080-808-A	White balance check
	ND filter 0.4	J-6080-806-A	White balance check
	ND filter 0.1	J-6080-807-A	White balance check
J-3	Pattern box PTB-450	J-6082-200-A	
J-4	Color chart for pattern box	J-6020-250-A	
J-5	Adjustment remote commander (RM-95 upgraded) (Note1)	J-6082-053-B	
J-6	Siemens star chart	J-6080-875-A	For checking the flange back
J-7	Clear chart for pattern box	J-6080-621-A	
J-8	Multi CPC jig	J-6082-311-A	For adjusting the LCD block
J-9	CPC-7 jig	J-6082-382-A	For adjusting the video section
J-10	Power code (Note2)	J-6082-223-A	For connecting the battery terminal and DC power supply
J-11	AFM DEV jig	J-6082-312-A	For adjusting the deviation
J-12	IR receiver jig	J-6082-383-A	For adjusting the IR transmitter
J-13	Mini pattern box	J-6082-353-B	For adjusting the flange back
J-14	Camera table	J-6082-384-A	For adjusting the flange back

Note1: If the micro processor IC in the adjustment remote commander is not the new micro processor (UPD7503G-C56-12), the pages cannot be switched. In this case, replace with the new micro processor (8-759-148-35).

Note2: Connect the adjustment remote commander to the LANC jack, and set to HOLD switch to the "ADJ" side.

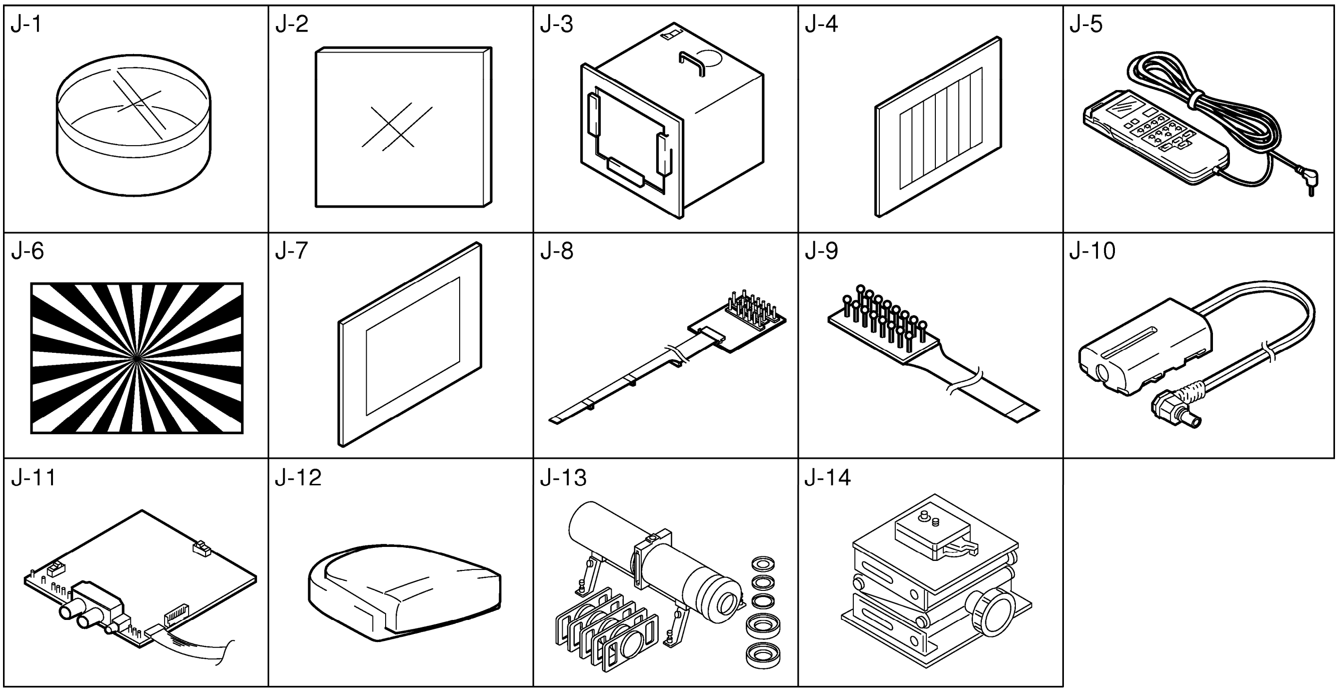


Fig. 5-1-1.

1-1-2. Preparations

Note1: For details of how remove the cabinet and boards, refer to "2. DISASSEMBLY".

Note2: When performing only the adjustments, the lens block and boards need not be disassembled.

Note3: TR model / TRV model
TR model: CCD-TR317E/TR417E/TR427E/TR617E/TR717E/
TR918E
TRV model: CCD-TRV37E/TRV47E/TRV48E/TRV57E/
TRV67E/TRV87E

1) Connect the equipment for adjustments according to Fig. 5-1-3, 5-1-4.
2) By setting the "Forced Camera Power ON mode", the camera power can be turned ON even if the front panel block (MA-374/375 board, power switch, microphone unit) has been removed. When removing the front panel block, disconnect the following connector.
   1. VC-234 board CN972 (20P 0.5mm)

Note4: As removing the cabinet (R) (removing the VC-234 board CN975) means removing the lithium 3V power supply (CF-66/67 board BH001), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the cabinet (R) has been removed, the self-diagnosis data, data on history of use (total drum rotation time etc.) will be lost. Before removing, note down the self-diagnosis data and data on history use (data of page: 2, address: A2 to AA). (Refer to "SELF-DIAGNOSIS FUNCTION" for the self-diagnosis data, and refer to "5-4. Service Mode" for the data on the history use.)

Note5: Setting the "Forced Camera Power ON" Mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.
The above procedure will enable the camera power to be turned on with the front panel block removed. After completing adjustments, be sure to exit the "Forced Camera Power ON Mode".

Note6: Exiting the "Forced Camera Power ON" Mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

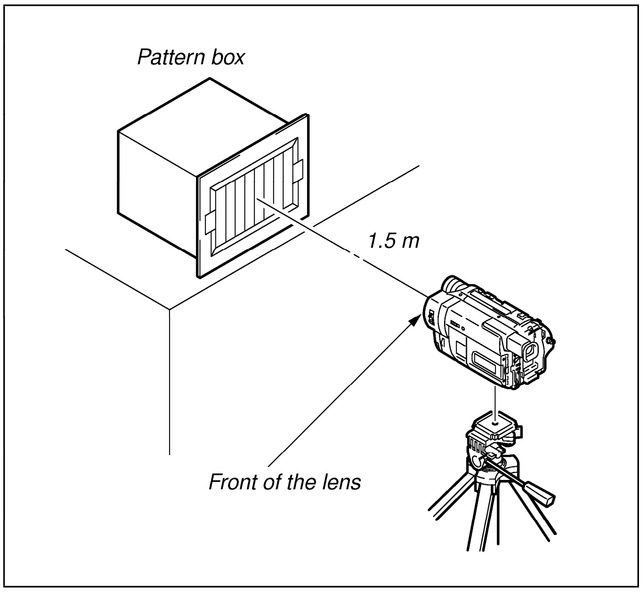
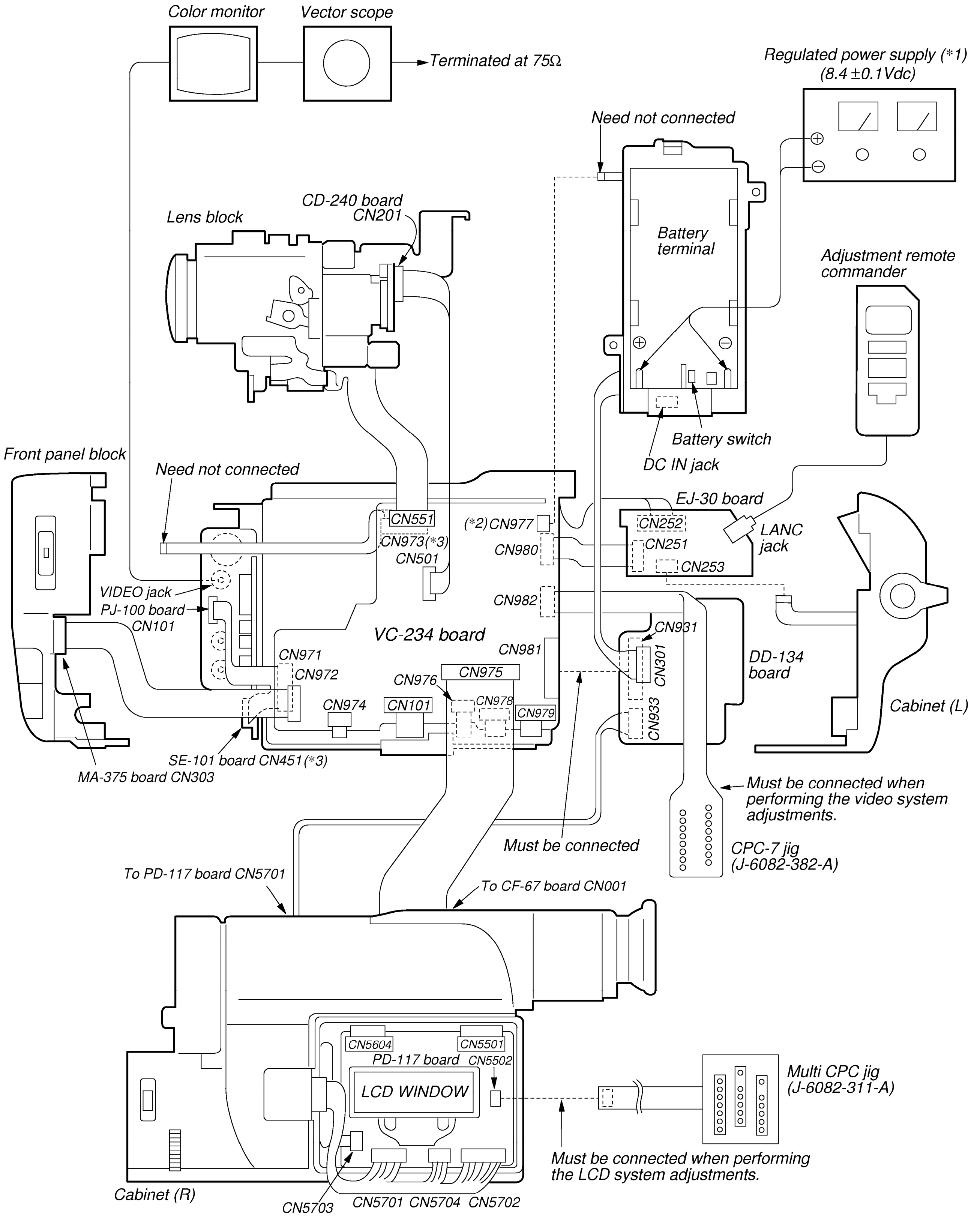


Fig. 5-1-2.

TRV model (CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)

*1: Press the battery switch of the battery terminal using adhesive tape, etc.
*2: CCD-TRV87E model only.
*3: CCD-TRV57E/TRV67E/TRV87E model only.

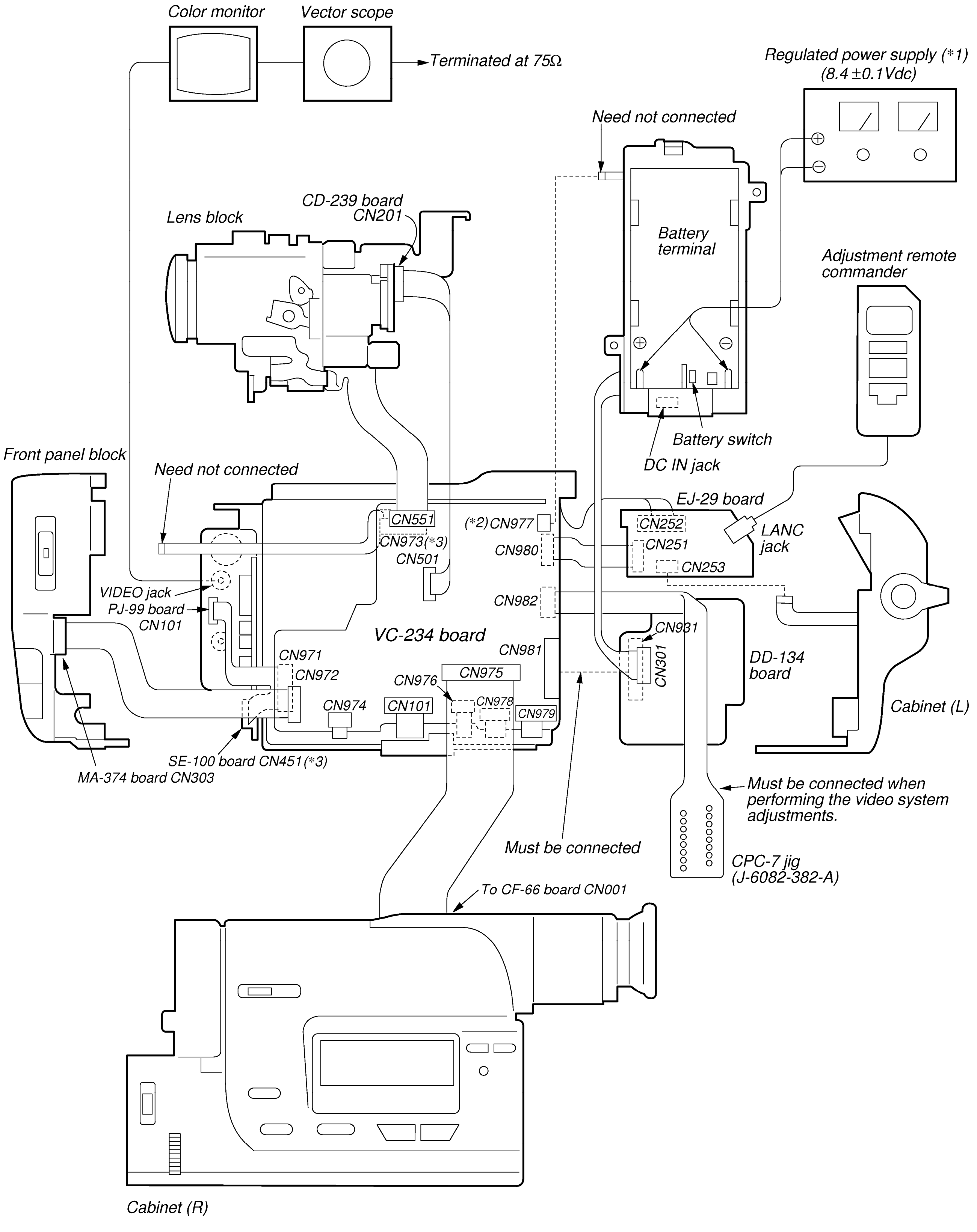


Color monitor
Vector scope
Terminated at 75Ω
Regulated power supply (*1)
(8.4 ±0.1Vdc)
Need not connected
CD-240 board
CN201
Lens block
Battery terminal
Adjustment remote commander
Battery switch
DC IN jack
Front panel block
Need not connected
EJ-30 board
CN252
CN251
CN253
LANC jack
CN551
(*2) CN977
CN973(*3)
CN980
CN501
CN982
VIDEO jack
PJ-100 board
CN101
VC-234 board
CN931
CN301
DD-134 board
CN981
CN971
CN972
CN976
CN975
CN978
CN974
CN101
CN979
CN933
Cabinet (L)
SE-101 board CN451(*3)
MA-375 board CN303
Must be connected when performing the video system adjustments.
Must be connected
CPC-7 jig
(J-6082-382-A)
To PD-117 board CN5701
To CF-67 board CN001
CN5604
CN5501
PD-117 board
CN5502
LCD WINDOW
Multi CPC jig
(J-6082-311-A)
Must be connected when performing the LCD system adjustments.
Cabinet (R)
CN5703
CN5701
CN5704
CN5702

Fig. 5-1-3.

TR model (CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)

**1: Press the battery switch of the battery terminal using adhesive tape, etc.*
**2: CCD-TR918E model only.*
**3: CCD-TR617E/TR717E/TR918E model only.*



Color monitor
Vector scope
Terminated at 75Ω
Regulated power supply (*1)
(8.4 ±0.1Vdc)
Need not connected
CD-239 board
CN201
Lens block
Battery terminal
Adjustment remote commander
Battery switch
DC IN jack
Front panel block
Need not connected
EJ-29 board
CN551
(*2) CN977
CN252
LANC jack
CN973(*3)
CN980
CN251
CN501
CN253
VIDEO jack
PJ-99 board
CN101
CN982
VC-234 board
CN931
CN981
DD-134 board
CN971
CN301
CN972
CN976
CN975
CN974
CN101
CN978
CN979
Cabinet (L)
SE-100 board CN451(*3)
MA-374 board CN303
Must be connected when performing the video system adjustments.
Must be connected
CPC-7 jig
(J-6082-382-A)
To CF-66 board CN001
Cabinet (R)

Fig. 5-1-4.

1-1-3. Precaution

1. Setting the Switch

Unless otherwise specified, set the switches as follows and perform adjustments without loading cassette.

1. POWER switch (MA-374/375 board) .... CAMERA
2. NIGHT SHOT switch (Lens block) .... OFF
3. VIDEO LIGHT switch (MA-374/375 board) (Note1) ..... OFF
4. DEMO MODE (Menu display) .... OFF
5. DIGITAL ZOOM (Menu display) .... OFF
6. STEADY SHOT (Menu display) (Note2) .... OFF
7. DISPLAY (Menu display) (Note3) .... V-OUT/LCD
8. DISPLAY (CF-66/67 board) (Note3) .... ON
9. FOCUS switch (MR-8500 block) .... MANUAL
10. PROGRAM AE (CF-66/67 board) .... Auto
11. BACK LIGHT (CF-66/67 board) .... OFF
12. PICTURE EFFECT (CF-66/67 board) .... OFF
13. DIGITAL EFFECT (CF-66/67 board) (Note4) .... OFF
14. 16 : 9 WIDE (MENU display) .... OFF

Note1: VIDEO LIGHT model (CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E) only.
Note2: STEADY SHOT model (CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E) only.
Note3: TRV model (CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E) only.
Note4: DIGITAL EFFECT model (CCD-TR918E/TRV87E) only.

2. Order of Adjustments

Basically carry out adjustments in the order given.

Color bar chart (Color reproduction adjustment frame)

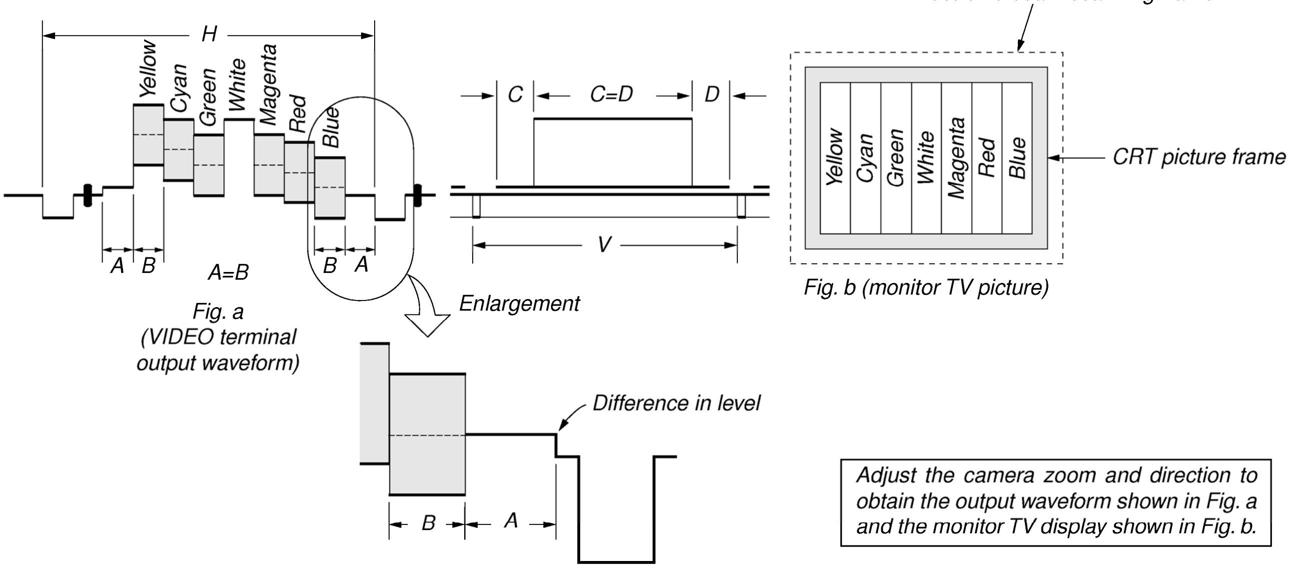

Electronic beam scanning frame
H
Yellow
Cyan
Green
White
Magenta
Red
Blue
A
B
A=B
B
A
C
C=D
D
V
Enlargement
Difference in level
B
A
Yellow
Cyan
Green
White
Magenta
Red
Blue
CRT picture frame

Fig. a (VIDEO terminal output waveform)

Fig. b (monitor TV picture)

Adjust the camera zoom and direction to obtain the output waveform shown in Fig. a and the monitor TV display shown in Fig. b.

Fig.5-1-5.

3. Subjects

1) Color bar chart (Color reproduction adjustment frame)
When performing adjustments using the color bar chart, adjust the picture frame as shown in Fig. 5-1-5. (Color reproduction adjustment frame)
2) Clear chart (Color reproduction adjustment frame)
Remove the color bar chart from the pattern box and insert a clear chart in its place. (Do not perform zoom operations during this time.)
3) Flange back adjustment chart
Make the chart shown in Fig. 5-1-6 using A0 size (1189mm × 841mm) black and white vellum paper.

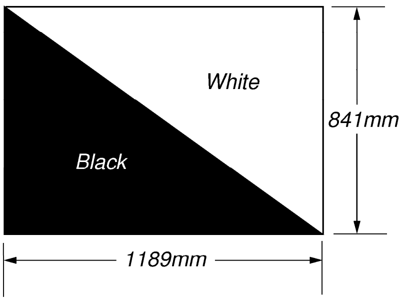

White
Black
841mm
1189mm

Fig. 5-1-6.

Note: Use matte vellum paper bigger than A0, and make sure the edges of the black and white paper joined together are not rough.

1-2. INITIALIZATION OF D, E, F, 7 PAGE DATA

1. Initializing the D, E, F, 7 Page Data

Note 1: If "Initializing the D, E, F, 7 Page Data" is performed, all data of the D page, E page, F page and 7 page will be initialized. (It is impossible to initialize a single page.)

Note 2: If the D, E, F, 7 page data has been initialized, "Modification of D, E, F, 7 Page Data" and all adjustments need to be performed again.

Adjusting page	D
Adjusting Address	00 to 85
Adjusting page	F
Adjusting Address	00 to FF
Adjusting page	E
Adjusting Address	00 to FF
Adjusting page	7
Adjusting Address	00 to FF

Initializing Method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 00, and set data: 51.
3) Select page: 6, address: 01, set data: 51, and press the PAUSE button of the adjustment remote commander.
4) Select page: 6, address: 02, and check that the data is 01.
5) Select page: 2, address: 00, and set data: 29.
6) Select page: 2, address: 01, set data: 29, and press the PAUSE button.
7) Perform "Modification of D, E, F, 7 Page Data".

2. Modification of D, E, F, 7 Page Data

If the D, E, F, 7 page data has been initialized, change the data of the "Fixed data-2" address shown in the following tables by manual input.

Modifying Method:

1) Before changing the data, select page: 0, address: 01, and set data: 01.
2) New data for changing are not shown in the tables because they are different in destination. When changing the data, copy the data built in the same model.
   Note: If copy the data built in the different model, the camcorder may not operate.
3) When changing the data, press the PAUSE button of the adjustment remote commander each time when setting new data to write the data in the non-volatile memory.
4) Check that the data of adjustment addresses is the initial value. If not, change the data to the initial value.

Processing after Completing Modification of D, E, F, 7 Page data

1) Select page: 2, address: 00, and set data: 29.
2) Select page: 2, address: 01, and set data: 29, and press the PAUSE button of the adjustment remote commander.

Note: If the following symptoms occur after completing of the "Modification of D, E, F, 7 page data", check that the data of the "Fixed data-2" addresses of D page are same as those of the same model of the same destination.
1) The battery end mark on the LCD or viewfinder screen is flashing.
2) The power is shut off so that unit cannot operate.

3. D Page Table

Note1: Fixed data-1: Initialized data. (Refer to "1. Initializing the D, E, F, 7 Page Data".)
Fixed data-2: Modified data. (Refer to "2. Modification of D, E, F, 7 Page Data".)

Address	Initial value	Remark
00 to 0F		
10	00	Test mode
11		Fixed data-1 (Initialized data)
12		
13		Fixed data-2 (Modified data. Copy the data built in the same model.)
14		
15		
16		Fixed data-1
17		Fixed data-2 (Modified data. Copy the data built in the same model.)
18		
19		
1A		
1B		
1C		
1D		
1E		
1F		
20		
21		Fixed data-1
22		Fixed data-2
23		Fixed data-1 (Initialized data)
24		
25		
26		
27		
28		Fixed data-2 (Modified data. Copy the data built in the same model.)
29		
2A		Fixed data-1 (Initialized data)
2B		
2C		
2D		
2E		
2F		
30		
31		
32		
33		
34		
35		
36		
37		
38		
39		
3A		
3B		
3C		
3D		
3E		
3F		

D page

Address	Initial value	Remark
40		Fixed data-2 (Modified data. Copy the data built in the same model.)
41		
42		Fixed data-1
43		Fixed data-2 (Modified data. Copy the data built in the same model.)
44		
45		
46		Fixed data-1
47		
48		Fixed data-2 (Modified data. Copy the data built in the same model.)
49		
4A		Fixed data-1 (Initialized data)
4B		
4C		
4D		Fixed data-2
4E		
4F		Fixed data-1
50		Fixed data-2 (Modified data. Copy the data built in the same model.)
51		
52		
53		
54		
55		
56		
57		Fixed data-1
58		Fixed data-2 (Modified data. Copy the data built in the same model.)
59		
5A		
5B		
5C		
5D		Fixed data-1 (Initialized data)
5E		
5F		
60		
61		
62		
63		
64		
65		Fixed data-2 (Modified data. Copy the data built in the same model.)
66		
67		
68		
69		
6A		Fixed data-1 (Initialized data)
6B		
6C		
6D		
6E		
6F		
70		
71		
72		
73		
74		
75		

Address	Initial value	Remark
76		Fixed data-1 (Initialized data)
77		
78		
79		
7A		
7B		
7C		
7D		
7E		
7F		
80		
81		
82		
83		
84		Fixed data-2
85		Fixed data-1

Table. 5-1-2

4. F Page table

Note1: Fixed data-1: Initialized data. (Refer to “1. Initializing the D, E, F, 7 Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of D, E, F, 7 Page Data”.)

Address	Initial value	Remark
00 to 0F		
10	00	Emergency memory address
11	00	
12	00	
13	00	
14	00	
15	00	
16	00	
17	00	
18	00	
19	00	
1A	00	
1B	00	
1C		Fixed data-2 (Modified data. Copy the data built in the same model.)
1D		
1E		Fixed data-1
1F		Fixed data-2
20		Fixed data-1 (Initialized data)
21		
22		
23		
24		Fixed data-2
25		Fixed data-1
26		Fixed data-2
27		Fixed data-1 (Initialized data)
28		
29		
2A		
2B		
2C		
2D		
2E		
2F		
30		
31		
32		
33		Fixed data-2
34		Fixed data-1 (Initialized data)
35		
36		
37		
38	68	HALL adj.
39	80	
3A	8D	
3B		Fixed data-2
3C	80	AWB & LV standard data input
3D	7A	
3E	2B	
3F	80	
40	65	
41	80	
42	8D	Auto white balance adj.
43	87	
44		Fixed data-1 (Initialized data)
45		
46		
47	33	Color reproduction adj.
48		Fixed data-1
49	34	Color reproduction adj.
4A		Fixed data-1 (Initialized data)
4B		
4C		
4D	8C	28MHz origin osc. Adj.
4E	28	Flange back adj.
4F	07	
50	3A	
51	4A	
52	12	
53	0B	
54	54	
55	00	
56	19	
57	00	
58	37	
59	00	
5A	00	
5B	04	
5C	00	
5D	00	
5E		Fixed data-2
5F		
60		Fixed data-1 (Initialized data)
61		
62	0A	Switching position adj.
63	00	
64	83	CAP FG offset adj.
65	40	AFC f_0 adj.
66	77	Filter f_0 adj.
67	6B	Y OUT level adj.
68	9A	C OUT level adj.
69		Fixed data-2
6A	D7	REC Y current adj.
6B	D7	
6C		Fixed data-1
6D		Fixed data-2 (Modified data. Copy the data built in the same model.)
6E		
6F		
70		
71	A0	REC C/AFM current adj.
72		Fixed data-1
73		Fixed data-2 (Modified data. Copy the data built in the same model.)
74		
75		
76		
77		Fixed data-1 (Initialized data)
78		
79		Fixed data-2

F page

Address	Initial value	Remark
7A		Fixed data-1
7B	A6	1.5MHz deviation adj.
7C	94	1.7MHz deviation adj.
7D	80	BPF f_0 adj.
7E	41	IR video deviation Adj.
7F	33	IR audio deviation Adj.
80	C7	IR video carrier freq. Adj.
81		Fixed data-2
82		Fixed data-1 (Initialized data)
83		
84		
85		
86		
87		
88		
89		
8A		
8B		Fixed data-2
8C		Fixed data-1 (Initialized data)
8D		
8E		Fixed data-2 (Modified data. Copy the data built in the same model.)
8F		
90		Fixed data-1 (Initialized data)
91		
92		
93		Fixed data-2
94		Fixed data-1 (Initialized data)
95		
96		
97		
98		
99		
9A		
9B		
9C		
9D		
9E		Fixed data-2 (Modified data. Copy the data built in the same model.)
9F		
A0		
A1		Fixed data-1 (Initialized data)
A2		
A3		
A4		
A5		
A6		
A7		
A8		
A9		
AA		
AB		
AC		
AD		
AE		
AF		
B0		

Address	Initial value	Remark
B1		Fixed data-1 (Initialized data)
B2		
B3		
B4		
B5		
B6		
B7		
B8		Fixed data-2 (Modified data. Copy the data built in the same model.)
B9		
BA		
BB		
BC		Fixed data-1 (Initialized data)
BD		
BE		
BF		
C0		
C1		
C2		
C3		
C4		
C5		
C6		
C7		
C8		
C9		
CA		
CB		
CC		
CD		Fixed data-2
CE		Fixed data-1 (Initialized data)
CF		
D0		
D1		
D2		
D3		
D4		Fixed data-2
D5		Fixed data-1 (Initialized data)
D6		
D7	FC	Color reproduction adj.
D8	F2	
D9	11	
DA	33	
DB		Fixed data-2
DC		Fixed data-1 (Initialized data)
DD		
DE		Fixed data-2
DF		
E0		Fixed data-1
E1		Fixed data-2
E2		Fixed data-1 (Initialized data)
E3		
E4		
E5		
E6		
E7		
E8		

Address	Initial value	Remark
E9		Fixed data-1 (Initialized data)
EA		
EB		
EC		
ED		Fixed data-2
EE		
EF		Fixed data-1 (Initialized data)
F0		
F1		
F2		
F3		Fixed data-2 (Modified data. Copy the data built in the same model.)
F4		
F5		
F6		
F7		Fixed data-1 (Initialized data)
F8		
F9		
FA		Fixed data-2
FB		Fixed data-1 (Initialized data)
FC		
FD		
FE		
FF		

Table. 5-1-3

5. E Page Table

Note: Fixed data-1: Initialized data. (Refer to “1. Initializing the D, E, F, 7 Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of D, E, F, 7 Page Data”.)

Address	Remark
00	Fixed data-1 (Initialized data)
01	
02	Fixed data-2 (Modified data. Copy the data built in the same model.)
03	
04	
05	
06	
07	Fixed data-1
08	Fixed data-2 (Modified data. Copy the data built in the same model.)
09	
0A	Fixed data-1 (Initialized data)
0B	
0C	
0D	
0E	
0F	Fixed data-2 (Modified data. Copy the data built in the same model.)
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
1A	Fixed data-1 (Initialized data)
1B	
1C	
1D	
1E	
1F	
20	
21	
22	
23	
24	
25	
26	
27	
28	Fixed data-2
29	Fixed data-1 (Initialized data)
2A	
2B	
2C	
2D	
2E	
2F	
30	Fixed data-2
31	Fixed data-1 (Initialized data)
32	

E page

Address	Remark
33	Fixed data-1
34	Fixed data-2
35	Fixed data-1
36	Fixed data-2
37	Fixed data-1
38	Fixed data-2 (Modified data. Copy the data built in the same model.)
39	
3A	Fixed data-1
3B	Fixed data-2 (Modified data. Copy the data built in the same model.)
3C	
3D	
3E	Fixed data-1 (Initialized data)
3F	
40	
41	Fixed data-2
42	Fixed data-1 (Initialized data)
43	
44	
45	
46	
47	
48	
49	
4A	
4B	
4C	
4D	
4E	
4F	
50	
51	Fixed data-2
52	Fixed data-1 (Initialized data)
53	
54	
55	
56	
57	
58	
59	Fixed data-2
5A	Fixed data-1 (Initialized data)
5B	
5C	
5D	
5E	
5F	
60	
61	
62	
63	
64	
65	
66	
67	
68	
69	

Address	Remark
6A	Fixed data-1 (Initialized data)
6B	
6C	
6D	
6E	
6F	
70	
71	
72	Fixed data-2
73	Fixed data-1 (Initialized data)
74	
75	
76	
77	
78	
79	
7A	
7B	
7C	Fixed data-2 (Modified data. Copy the data built in the same model.)
7D	
7E	
7F	Fixed data-1
80	Fixed data-2
81	Fixed data-1 (Initialized data)
82	
83	
84	
85	
86	
87	
88	
89	
8A	
8B	
8C	Fixed data-2 (Modified data. Copy the data built in the same model.)
8D	
8E	
8F	Fixed data-1
90	Fixed data-2
91	Fixed data-1 (Initialized data)
92	
93	Fixed data-2
94	Fixed data-1 (Initialized data)
95	
96	
97	
98	Fixed data-2
99	Fixed data-1 (Initialized data)
9A	
9B	
9C	
9D	
9E	
9F	
A0	
A1	

Address	Remark
A2	Fixed data-1 (Initialized data)
A3	
A4	
A5	
A6	
A7	
A8	Fixed data-2
A9	Fixed data-1 (Initialized data)
AA	
AB	Fixed data-2
AC	Fixed data-1 (Initialized data)
AD	
AE	
AF	
B0	
B1	
B2	
B3	
B4	
B5	
B6	
B7	Fixed data-2
B8	Fixed data-1
B9	Fixed data-2
BA	Fixed data-1
BB	Fixed data-2
BC	Fixed data-1 (Initialized data)
BD	
BE	
BF	
C0	Fixed data-2
C1	Fixed data-1
C2	Fixed data-2
C3	Fixed data-1
C4	Fixed data-2 (Modified data. Copy the data built in the same model.)
C5	
C6	
C7	Fixed data-1 (Initialized data)
C8	
C9	Fixed data-2
CA	Fixed data-1 (Initialized data)
CB	
CC	Fixed data-2
CD	Fixed data-1 (Initialized data)
CE	
CF	
D0	Fixed data-2
D1	Fixed data-1 (Initialized data)
D2	
D3	Fixed data-2
D4	Fixed data-1 (Initialized data)
D5	
D6	Fixed data-2
D7	Fixed data-1 (Initialized data)
D8	
D9	Fixed data-2
DA	Fixed data-2 (Modified data. Copy the data built in the same model.)
DB	
DC	
DD	
DE	Fixed data-1
DF	Fixed data-2
E0	Fixed data-1 (Initialized data)
E1	
E2	
E3	Fixed data-2
E4	Fixed data-1 (Initialized data)
E5	
E6	
E7	
E8	
E9	
EA	
EB	
EC	
ED	
EE	
EF	
F0	
F1	
F2	
F3	
F4	
F5	Fixed data-2 (Modified data. Copy the data built in the same model.)
F6	
F7	
F8	
F9	
FA	
FB	Fixed data-1 (Initialized data)
FC	
FD	
FE	
FF	

Table. 5-1-4

6. 7 Page Table

Note: Fixed data-1: Initialized data. (Refer to “1. Initializing the D, E, F, 7 Page Data”.)
Fixed data-2: Modified data. (Refer to “2. Modification of D, E, F, 7 Page Data”.)

Address	Initial value	Remark
00		Fixed data-1 (Initialized data)
01		
02		
03		
04		
05		
06		Fixed data-2
07		
08		Fixed data-1 (Initialized data)
09		
0A		
0B		Fixed data-2
0C		Fixed data-1 (Initialized data)
0D		
0E		
0F		
10		Fixed data-2
11		
12		Fixed data-1 (Initialized data)
13		
14		Fixed data-2
15		Fixed data-1 (Initialized data)
16		
17		
18		
19		
1A		
1B		
1C		
1D		
1E		
1F		
20		
21		
22		
23		
24		
25		
26		
27		
28		Fixed data-2
29		Fixed data-1
2A		Fixed data-2
2B		Fixed data-1 (Initialized data)
2C		
2D		
2E		Fixed data-2
2F		Fixed data-1
30		Fixed data-2
31		Fixed data-1
32		Fixed data-2
33		Fixed data-1
34		Fixed data-1 (Initialized data)
35		
36		Fixed data-2
37		Fixed data-1
38		Fixed data-2
39		Fixed data-1 (Initialized data)
3A		
3B		
3C		
3D		
3E		
3F		
40		
41		
42		Fixed data-2
43		Fixed data-1 (Initialized data)
44		
45		
46		
47		
48		
49		
4A		
4B		
4C		
4D		
4E		
4F		
50		
51		
52		
53		
54		
55		
56		
57		
58		
59		
5A		
5B		
5C		Fixed data-2 (Modified data. Copy the data built in the same model.)
5D		
5E		
5F		
60		Fixed data-1 (Initialized data)
61		
62		
63		
64		Fixed data-2 (Modified data. Copy the data built in the same model.)
65		
66		
67		
68		Fixed data-1 (Initialized data)
69		
6A		
6B		Fixed data-2

Address	Initial value	Remark
6C		Fixed data-2 (Modified data. Copy the data built in the same model.)
6D		
6E		
6F		Fixed data-1 (Initialized data)
70		
71		
72		
73		
74		
75		
76		
77		Fixed data-2 (Modified data. Copy the data built in the same model.)
78		
79		Fixed data-1
7A		Fixed data-2
7B		Fixed data-1 (Initialized data)
7C		
7D		
7E		
7F		
80		
81		
82		
83		
84		
85		Fixed data-2
86		Fixed data-1 (Initialized data)
87		
88		
89		
8A		
8B		
8C		
8D		
8E		
8F		
90		
91		
92		
93		
94		
95		
96		
97		
98		
99		
9A		
9B		
9C		
9D		
9E		
9F		
A0		
A1		
A2		

Address	Initial value	Remark
A3		Fixed data-1 (Initialized data)
A4		
A5		
A6		
A7		
A8		
A9		
AA		
AB		Fixed data-2
AC		Fixed data-1 (Initialized data)
AD		
AE		
AF		
B0		
B1		
B2		
B3		
B4		
B5		
B6		
B7		
B8		
B9		
BA		
BB		
BC		
BD		
BE		
BF		
C0		
C1		
C2		
C3		
C4		Fixed data-2
C5		Fixed data-1
C6		Fixed data-2 (Modified data. Copy the data built in the same model.)
C7		
C8		
C9		
CA		Fixed data-1
CB		
CC		Fixed data-2 (Modified data. Copy the data built in the same model.)
CD		
CE		
CF		
D0		
D1		Fixed data-1 (Initialized data)
D2		
D3		
D4		
D5		
D6		
D7		
D8		
D9		
DA		

7 page

Address	Initial value	Remark
DB		Fixed data-1 (Initialized data)
DC		
DD		
DE		
DF		
E0		
E1		
E2		
E3		
E4		
E5	6E	VCO adj.(LCD)
E6	63	
E7	8E	V-COM adj.(LCD)
E8	29	RGB AMP adj.(LCD)
E9		Fixed data-1
EA	C3	COM AMP adj.(LCD)
EB	60	White balance adj.(LCD)
EC	65	
ED	50	Contrast adj.(LCD)
EE		Fixed data-1 (Initialized data)
EF		
F0		Fixed data-2
F1		Fixed data-1 (Initialized data)
F2		
F3		Fixed data-2
F4		Fixed data-1 (Initialized data)
F5		
F6		
F7		
F8		
F9	FF	REC Y current adj.(LCD)
FA		Fixed data-1 (Initialized data)
FB		
FC		
FD		
FE		
FF		

Table. 5-1-5

1-3. CAMERA SYSTEM ADJUSTMENTS

Before perform the camera system adjustments, Check that the specified value of "28MHz Origin Oscillation Adjustment", "Y OUT level Adjustment" and "C OUT level Adjustment" of "VIDEO SYSTEM ADJUSTMENT" are satisfied.

1. HALL Adjustment

For detecting the position of the lens iris, adjust the hall AMP gain and offset.

Subject	Not required
Measurement Point	Display data of page 1
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	38, 39, 3A
Specified Value	When the data of page: 6, address: 01 is "01": 86 to 8A (Note2) When the data of page: 6, address: 01 is "03": 15 to 19 (Note2)

Note1: Displayed data of page 1 of the adjustment remote commander.

1 : 00 : XX
Display data

Note2: The PAUSE button of the Adjustment remote commander must be pressed.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 94, and set data: 88.
3) Select page: 6, address: 95, and set data: 17.
4) Select page: 6, address: 01, set data: 6D, and press the PAUSE button of the adjustment remote commander. (The HALL adjustment is performed and the adjustment data is stored in page: F, address: 38 to 3A.)
5) Select page: 6, address: 02, and check that the data is "01".
6) Select page: 6, address: 01, set data: 00, and press the PAUSE button.

Checking method:

1) Select page: 0, address: 03, and set data: 03.
2) Select page: 6, address: 01, set data: 01, and press the PAUSE button.
3) Select page: 1, and check that the display data (Note1) satisfies the specified value.
4) Select page: 6, address: 01, set data: 03, and press the PAUSE button.
5) Select page: 1, and check that the display data (Note1) satisfies the specified value.

Processing after Completing Adjustments

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
2) Select page: 6, address: 94, and set data: 00.
3) Select page: 6, address: 95, and set data: 00.
4) Select page: 0, address: 01, and set data: 00.
5) Select page: 0, address: 03, and set data: 00.

2. Flange Back Adjustment (Using Minipattern Box)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

Subject	Siemens star chart with ND filter for the minipattern box (Note1)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	4E to 5D

Note1: Dark Siemens star chart.
Note2: Make the lens horizontal and perform this adjustment.

Switch setting:

1) NIGHT SHOT ....OFF
2) DIGITAL ZOOM (Menu display) ....OFF
3) STEADY SHOT (Menu display) ....OFF
4) VIDEO LIGHT ....OFF

Preparations before adjustments:

The minipattern box is installed as shown in the following figure.

Note: The attachment lenses are not used.

Specified voltage: The specified voltage varies according to the minipattern box, so adjust the power supply output voltage to the specified voltage written on the sheet which is supplied with the minipattern box.

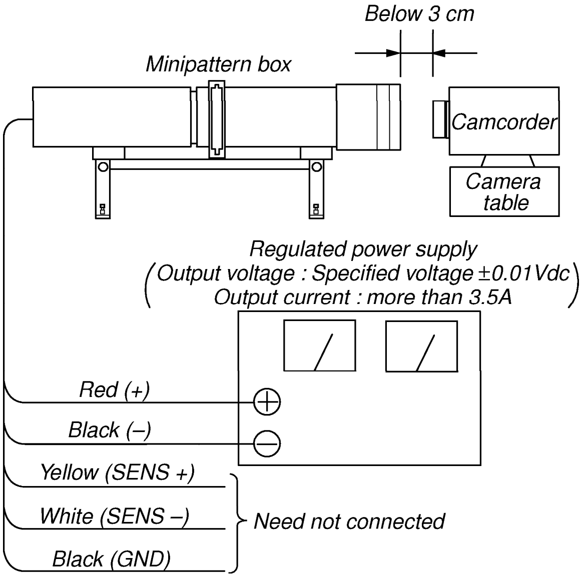


Fig. 5-1-7.

Adjusting method:

1) Install the minipattern box so that the distance between it and the front of the lens of the camcorder is less than 3cm.
2) Make the height of the minipattern box and the camcorder equal.
3) Check that the output voltage of the regulated power supply is the specified voltage.
4) Check that at both the zoom lens TELE end and WIDE end, the center of the Siemens star chart and center of the exposure screen coincide.
5) Select page: 0, address: 01, and set data: 01.
6) Check that the data of page: F, address: 4E to 5D is the initial value (See table below).

Address	Data	Address	Data
4E	28	56	19
4F	07	57	00
50	3A	58	37
51	4A	59	00
52	12	5A	00
53	0B	5B	04
54	54	5C	00
55	00	5D	00

7) Select page: 6, address: 02, and check that the data is “00”.
8) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
9) Select page: 6, address: 01, set data: 27, and press the PAUSE button.
(The adjustment data will be automatically input to page: F, addresses: 4E to 5D.)
10) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

1) Select page: 0, address: 01, and set data: 00.
2) Turn off the power and turn on again.
3) Perform “Flange Back Check”.

3. Flange Back Adjustment (Using Flange Back Adjustment Chart and Subject More Than 500m Away)

The inner focus lens flange back adjustment is carried out automatically. In whichever case, the focus will be deviated during auto focusing/manual focusing.

3-1. Flange Back Adjustment (1)

Subject	Flange back adjustment chart (2.0 m from the front of the lens) (Luminance: 350 ± 50 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	4E to 5D

Note: Make the lens horizontal and perform this adjustment.

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Adjusting method:

1) Check that at both the zoom lens TELE end and WIDE end, the center of the chart for the flange back adjustment and center of the exposure screen coincide.
2) Select page: 0, address: 01, and set data: 01.
3) Check that the data of page: F, address: 4E to 5D is the initial value (See table below).

Address	Data	Address	Data
4E	28	56	19
4F	07	57	00
50	3A	58	37
51	4A	59	00
52	12	5A	00
53	0B	5B	04
54	54	5C	00
55	00	5D	00

4) Select page: 6, address: 02, and check that the data is “00”.
5) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
6) Select page: 6, address: 01, set data: 15, and press the PAUSE button.
   (The adjustment data will be automatically input to page: F, addresses: 4E to 5D.)
7) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

1) Select page: 0, address: 01, and set data: 00.
2) Turn off the power and turn on again.
3) Perform “Flange Back Adjustment (2)”.

3-2. Flange Back Adjustment (2)

Perform this adjustment after performing “Flange Back Adjustment (1)”.

Subject	Subject more than 500m away (Subjects with clear contrast such as buildings, etc.)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Adjustment Page	F
Adjustment Address	4E to 5D

Note: Make the lens horizontal and perform this adjustment.

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Adjusting method:

1) Set the zoom lens to the TELE end and expose a subject that is more than 500m away (subject with clear contrast such as building, etc.). (Nearby subjects less than 500 m away should not be in the screen.)
2) Select page: 0, address: 01, and set data: 01.
3) Select page: 6, address: 02, and check that the data is “00”.
4) Select page: 6, address: 01, set data: 13, and press the PAUSE button of the adjustment remote commander.
5) Place a ND filter on the lens so that the optimum image is obtain.
6) Select page: 6, address: 01, set data: 29, and press the PAUSE button.
   (The adjustment data will be automatically input to page: F, addresses: 4E to 5D.)
7) Select page: 6, address: 02, and check that the data is “01”.

Processing after Completing Adjustments:

1) Select page: 0, address: 01, and set data: 00.
2) Turn off the power and turn on again.
3) Perform “Flange Back Check”.

4. Flange Back Check

Subject	Siemens star (2.0 m from the front of the lens) (Luminance : approx. 200 lux)
Measurement Point	Check operation on TV monitor
Measuring Instrument	
Specified Value	Focused at the TELE end and WIDE end.

Switch setting:

1) NIGHT SHOT .... OFF
2) VIDEO LIGHT .... OFF

Checking method:

1) Place the Siemens star 2.0m from the front of the lens.
2) To open the IRIS, decrease the luminous intensity to the Siemens star up to a point before noise appear on the image.
3) Select page: 6, address: 40, and set data: 02.
4) Select page: 6, address: 41, and set data: 01.
5) Shoot the Siemens star with the zoom TELE end.
6) Turn on the auto focus.
7) Check that the lens is focused (Note).
8) Select page: 6, address: 21, and set data: 10.
9) Shoot the Siemens star with the zoom WIDE end.
10) Observe the TV monitor and check that the lens is focused.

Note: When the auto focus is ON, the lens can be checked if it is focused or not by observing the data on the page 1 of the adjustment remote commander.
1) Select page: 0, address: 03, and set data: 0F.
2) Page 1 shows the state of the focus.

1 : 00 : XX
- Odd: Focused
- Even: Unfocused

Processing after Completing Adjustments

1) Select page: 6, address: 21, and set data: 00.
2) Select page: 6, address: 40, and set data: 00.
3) Select page: 6, address: 41, and set data: 00.
4) Select page: 0, address: 03, and set data: 00.

5. Picture Frame Setting

Subject	Color bar chart (Color reproduction adjustment frame) (1.5m from the front of the lens)
Measurement Point	Video output terminal
Measuring Instrument	Oscilloscope and TV monitor
Specified Value	A=B, C=D, E=F

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Setting method:

1) Adjust the zoom and the camera direction, and set to the specified position.
2) Mark the position of the picture frame on the monitor display, and adjust the picture frame to this position in following adjustments using "Color reproduction adjustment frame".

Check on the oscilloscope

1. Horizontal period

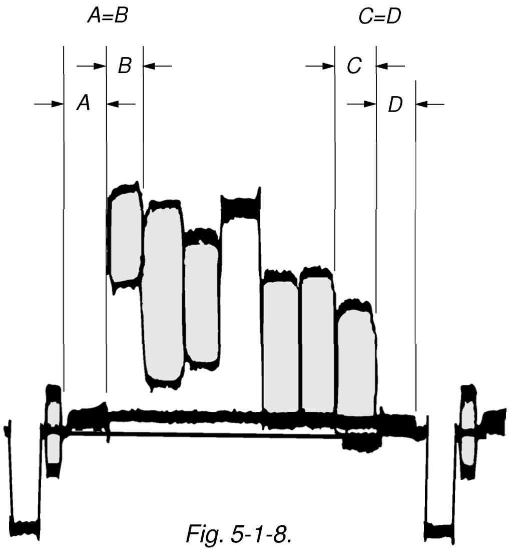


Fig. 5-1-8.

2. Vertical period

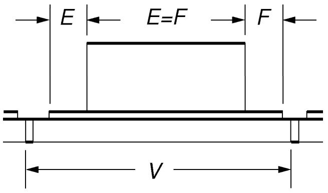


Fig. 5-1-9.

Check on the monitor TV (Underscanned mode)

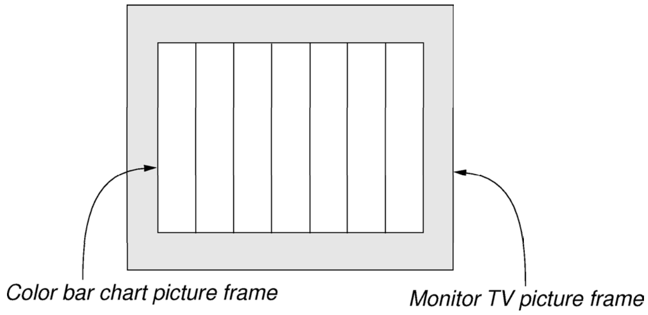


Fig. 5-1-10.

6. Color Reproduction Adjustment

Adjust the color Separation matrix coefficient so that proper color reproduction is produced.

Subject	Color bar chart (Color reproduction adjustment frame)
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Adjustment Page	F
Adjustment Address	47, 49, D7, D8
Specified Value	All color luminance points should settle within each color reproduction frame.

Note: 760H TYPE S model:
CCD-TRV87E
760H TYPE P model:
CCD-TR918E
510H 1/4 inch model:
CCD-TR617E/TR717E/TRV57E/TRV67E
510H 1/6 inch model:
CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 2B, set data: 97, and press the PAUSE button.
3) Select page: F, address: 8B, and note down the data.
4) Input the following data to page: F, address: 8B.

	Data
760H model	26
510H 1/4 inch model	29
510H 1/6 inch model	29

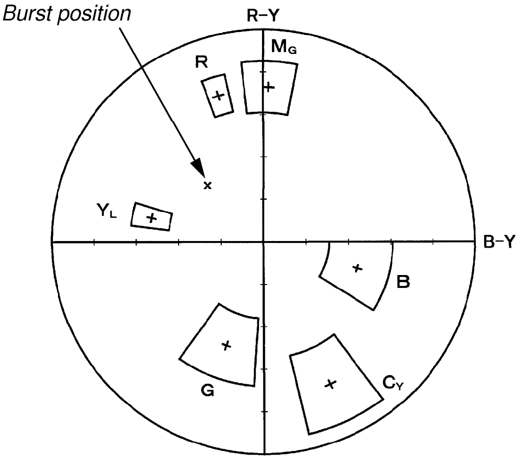
Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

5) Select page: 6, address: 01, set data: 3D, and press the PAUSE button.
6) Adjust the GAIN and PHASE of the vectorscope, and adjust the burst luminance point to the burst position of the color reproduction frame.
7) Change the data of page: F, address: 47, 49, D7 and D8, and settle each color luminance point in each color reproduction frame.
Note: Be sure to press the PAUSE button of the adjustment remote commander before changing the addresses. If not, the new data will not be written to the memory.
8) Select page: F, address: 8B, input the data noted down at step 3), and press the PAUSE button.

Processing after Completing Adjustments

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 0, address: 01, and set data: 00.

For 510H model and 760H TYPE S model



For 760H TYPE P model

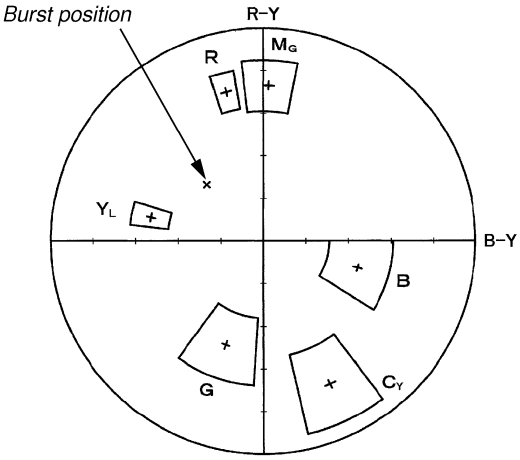


Fig. 5-1-11.

7. Auto White Balance & LV Standard Data Input

Subject	Clear chart (Color reproduction adjustment frame)
Adjustment Page	F
Adjustment Address	3C to 41

Note1: This adjustment should be carried out upon completion of "6. Color Reproduction Adjustment".

Note2: Check that the data of page: 6, address: 02 is "00". If not, turn off the power and turn on again.

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 6, address: 01, set data: 11, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 01, set data: 0D, and press the PAUSE button.
   (When the standard data is take in, the data will be automatically input to page: F, address: 3C to 41.)
4) Select page: 6, address: 02, and check that the data is "01".

Processing after Completing Adjustments

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
2) Select page: 0, address: 01, and set data: 00.
3) Perform "Auto White Balance Adjustment".

8. Auto White Balance Adjustment

Adjust to the proper auto white balance output data.
If it is not correct, auto white balance and color reproducibility will be poor.

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction
Measurement Point	Display data of page 1 (Note2)
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	42, 43
Specified Value	760H TYPE S model: R ratio: 2B70 to 2BF0 B ratio: 5E80 to 5F40 760H TYPE P model: R ratio: 2A60 to 2AE0 B ratio: 6020 to 60E0 510H 1/4 inch model: R ratio: 2B40 to 2BC0 B ratio: 5EA0 to 5F60 510H 1/6 inch model: R ratio: 29C0 to 2A40 B ratio: 6040 to 6100

Note1: Perform "Auto White Balance & LV Standard Data Input" before this adjustment.

Note2: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX
Display data

Note3: 760H TYPE S model:
CCD-TRV87E
760H TYPE P model:
CCD-TR918E
510H 1/4 inch model:
CCD-TRV57E/TRV67E/TR617E/TR717E
510H 1/6 inch model:
CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Adjusting method:

1) Place the C14 filter for color temperature correction on the lens.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: F, address: B8 to BB, and note down the data of each address.
4) Input the following data to page: F, addresses: B8 to BB.

Address		B8	B9	BA	BB
Data	760H TYPE S model	2B	B0	5E	E0
	760H TYPE P model	2A	A0	60	80
	510H 1/4 inch model	2B	80	5F	00
	510H 1/6 inch model	2A	00	60	A0

Note: Press the PAUSE button of the adjustment remote commander each time to set the data.

5) Select page: 6, address: 01, set data: A7, and press the PAUSE button.
6) Select page: 6, address: 01, set data: A5, and press the PAUSE button.
(The auto white balance adjustment is performed and the adjustment data is stored in page: F, address: 42 and 43.)
7) Select page: 6, address: 02, and check that the data is "01".
8) Select page: 6, address: 01, set data: 3F, and press the PAUSE button.
9) Select page: 0, address: 03, and set data: 04.
10) Select page: 1, and check that the display data (Note2) satisfies the R ratio specified value.
11) Select page: 0, address: 03, and set data: 05.
12) Select page: 1, and check that the display data (Note2) satisfies the B ratio specified value.
13) Select page: F, address: B8 to BB, and input the data noted down at step 3).
Note: After setting each data, be sure to press the PAUSE button of the adjustment remote commander.

Processing after Completing Adjustments:

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
2) Select page: 0, address: 03, and set data: 00.
3) Select page: 0, address: 01, and set data: 00.

9. White Balance Check

Subject	Clear chart (Color reproduction adjustment frame)
Filter	Filter C14 for color temperature correction ND filter 1.0 and 0.4 and 0.1
Measurement Point	Video output terminal
Measuring Instrument	Vectorscope
Specified Value	Fig. 5-1-12. A to C

Switch setting:

1) NIGHT SHOT .... OFF
2) DIGITAL ZOOM (Menu display) .... OFF
3) STEADY SHOT (Menu display) .... OFF
4) VIDEO LIGHT .... OFF

Checking method:

1) Check that the lens is not covered with either filter.
2) Select page: 6, address: 01, set data: 0F, and press the PAUSE button of the adjustment remote commander.
3) Check that the center of the white luminance point is within the circle shown Fig. 5-1-12. (A).
4) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
5) Select page: 6, address: 01, set data: 23, and press the PAUSE button.
6) Place the C14 filter on the lens.
7) Check that the center of the white luminance point settles in the circle shown Fig. 5-1-12. (B).
8) Remove the C14 filter, and place the ND filter 1.5 (1.0 +0.4+0.1) on the lens.
9) Check that the white luminance point stopped moving, and then remove the ND filter 1.5.
10) Check that the center of the white luminance point settles within the circle shown Fig. 5-1-12. (C).

Processing after Completing Adjustments

1) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.

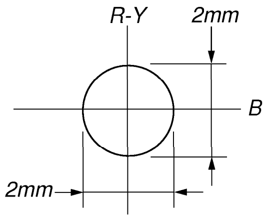


Fig. 5-1-12. (A)

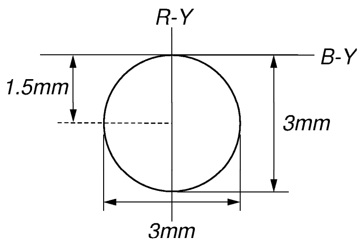


Fig. 5-1-12. (B)

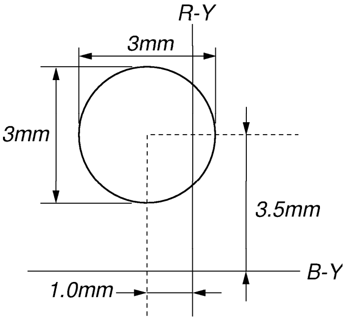


Fig. 5-1-12. (C)

10. Steady Shot Check (CCD-TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)

Precautions on the Angular Velocity Sensor Replacement

There are two types of repair parts.

Type A	ENC03JA
Type B	ENC03JB

Replace the broken sensor with a same type sensor. If replace with other type parts, the image will vibrate up and down or left and right during hand-shake correction operations. After replacing, check the steady shot operations.

Precautions on Angular Velocity Sensor

The sensor incorporates a precision oscillator. Handle it with care as if it dropped, the balance of the oscillator will be disrupted and operations will not be performed properly.

Steady Shot Check

Check the output of the angular velocity sensor.

Subject	Arbitrary
Measurement Point	Display data of page 1 (Note)
Measuring Instrument	Adjustment remote commander
Specified Value	PITCH data : 2700 to 5100 YAW data : 2700 to 5100

Note: Displayed data of page 1 of the adjustment remote commander.

1 : XX : XX
Display data

Switch setting:

1) ZOOM .... TELE end
2) STEADY SHOT (Menu display) .... ON

Checking method:

1) Select page: 0, address: 03, and set data: 11.
2) Select page: 1, and check that the PITCH data satisfies the specified value.
3) Select page: 0, address: 03, and set data: 12.
4) Select page: 1, and check that the YAW data satisfies the specified value.

Processing after Completing Adjustments

1) Select page: 0, address: 03, and set data: 00.
2) Check that the steady shot operations have been performed normally.

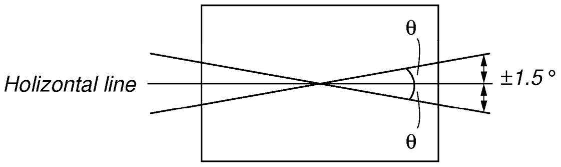
1-4. MONOCHROME ELECTRONIC VIEWFINEDER SYSTEM ADJUSTMENT

1-4-1. Horizontal Slant Check

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5CSP) Monoscope section
Specified Value	± 1.5°

Adjusting method:

1) Adjust RV904 (BRIGHT) (VF-129 board) so that the CRT can be seen easily and clearly.
2) Check that the difference between the horizontal line and the tilt of black mask satisfies the specified value.


θ
Holizontal line
±1.5 °
θ

Specified value : The image should be within ± 1.5 ° of the holizontal line.

Fig. 5-1-13.

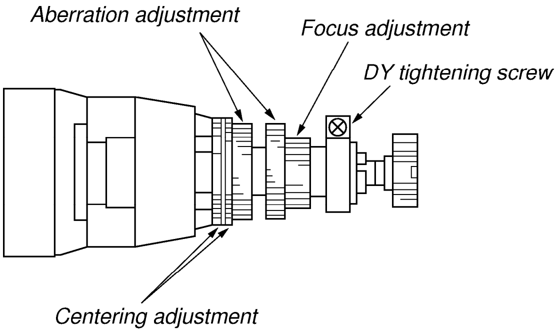
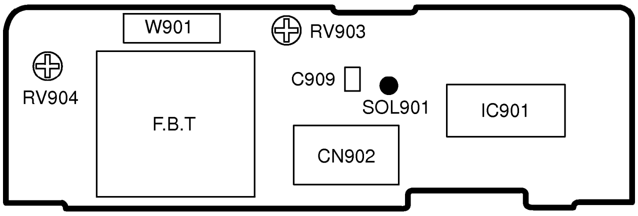

Aberration adjustment
Focus adjustment
DY tightening screw
Centering adjustment

Fig. 5-1-14.

VF-129 BOARD


W901
RV903
RV904
C909
SOL901
IC901
F.B.T
CN902

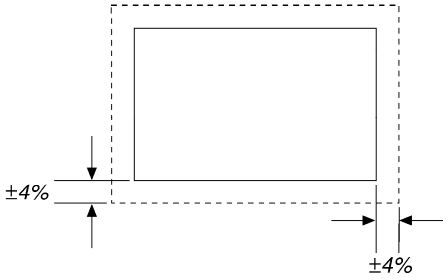
1-4-2. Centering Adjustment

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5CSP) Monoscope section
Specified Value	± 4%

Adjusting method:

1) Use the centering adjustment ring and adjust so that the left, light, top, and bottom sides of the display are uniform. (Refer to Fig. 5-1-14.)

Note: As the centering position changes due to earth magnetism, rotate it 360° in the horizontal direction, and adjust with the center section of the modifying position.



Adjustment value : ±4%

Fig. 5-1-15.

1-4-3. Focus Adjustment

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5CSP) Monoscope section

Adjusting method:

1) Adjust the focus ring to obtain the optimum focus. (Refer to Fig. 5-1-14.)

1-4-4. Aberration Adjustment

Mode	VTR stop
Signal	Dot pattern
Specified Value	b1 ≦ 2 × a1 b2 ≦ 0.8 × a2

Adjusting method:

1) Adjust the aberration adjustment ring so that the tracing of the dot satisfies the specified value.
2) If the centering becomes displaced here, perform the centering adjustment from the beginning again.

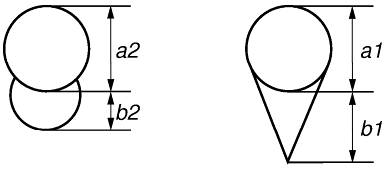


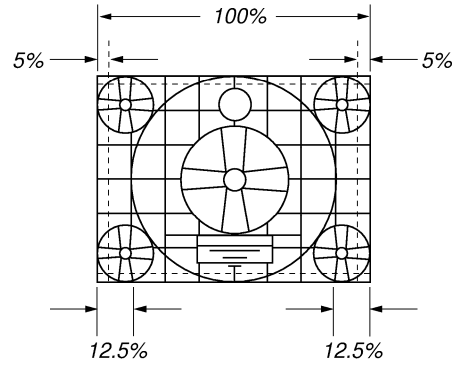
Fig. 5-1-16.

1-4-5. Horizontal Amplitude Adjustment (VF-129 board)

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5CSP) Monoscope section
Adjusting Element	C909 (SOL901)
Specified Value	10 ± 6%

Adjusting method:

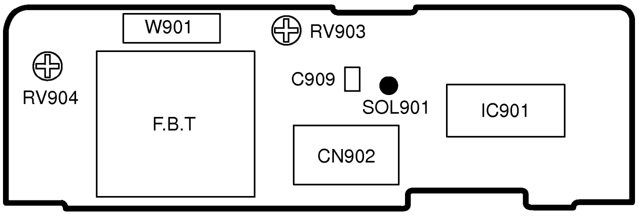
1) Rotate RV903, and adjust the top and bottom side of the monoscope image to the top and bottom edges of the display.
2) Rotate RV904 so that the brightness is the normal level.
3) Solder or unsolder SOL901 pattern of the H size adjustment capacitor (C909) to "short" or "open", so that the horizontal direction over scan becomes 10 ± 6% (Left and right totals).



SOL901	Size H
Open	Small
Short	Big

Fig. 5-1-17.

VF-129 BOARD



1-4-6. Vertical Amplitude Adjustment (VF-129 board)

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5CSP) Monoscope section
Adjusting Element	RV903
Specified Value	10 ± 3%

Adjusting method:

1) Adjust RV903 so that the vertical direction over scan becomes 10 ± 3% (Top and bottom totals).

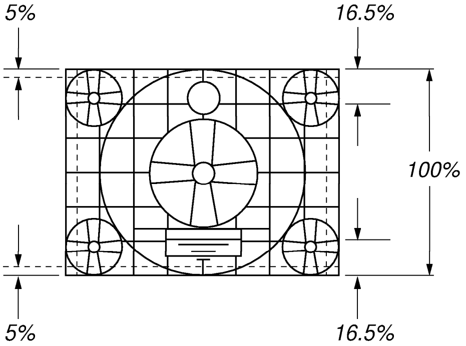


Fig. 5-1-18.

1-4-7. Brightness Adjustment (VF-129 board)

Mode	Playback
Signal	Alignment tape : For checking operation (WR5-5CSP) Monoscope section
Adjusting Element	RV904

Adjusting method:

1) Rotate RV904, and adjust so that the bright/dark sections of gray scale are displayed correctly. (The bright section should be unsatisfactory till the cross hatch appears vague in the monoscope circle. The dark section should be unsatisfactory till the darkest section of the gray scale cannot be differentiate.)

1-4-8. Horizontal Amplitude, Vertical Amplitude, Focus Check

"1-4-5. Horizontal Amplitude Adjustment" and "1-4-6. Vertical Amplitude Adjustment" should be both satisfy the specified values. If not, perform the adjustments from the beginning again. In this case, perform "1-4-7. Brightness Adjustment" again.
Moreover, check the focus, and if it found to be vague, perform "1-4-3. Focus Adjustment" and "1-4-4. Aberration Adjustment".

1-5. LCD SYSTEM ADJUSTMENT (CCD-TRV37E/TRV47E/TRV48E/TRV57E/ TRV67E/ TRV87E)

Note1: The back light (fluorescent tube) is driven by a high voltage AC power supply. Therefore, do not touch the back light holder to avoid electrical shock.

Note2: When replacing the LCD unit, be careful to prevent damages caused by static electricity.

Note 3: Set the LCD BRIGHT to the center.
Set the LCD COLOR (Menu display) to the center.

[Adjusting connector]

Most of the measuring points for adjusting the LCD display are concentrated in the following connector.

CN5502 of the PD-117 board

Connect the Measuring Instruments via the multi CPC jig (J-6082-311-A).

The following table shows the Pin No. and signal name of the connector.

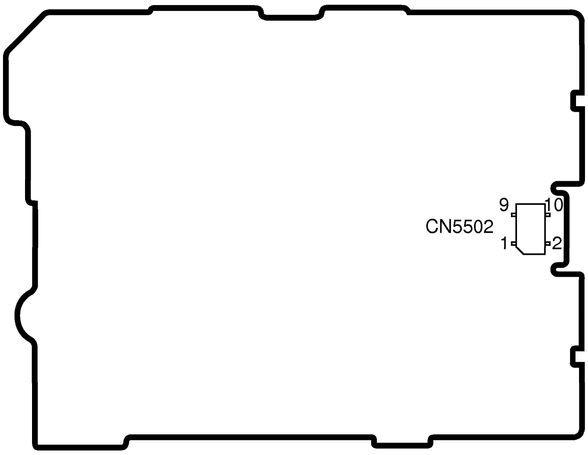
Pin No.	Signal Name	Pin No.	Signal Name
1	VB	2	XVD OUT
3	VG	4	PANEL COM
5	VR	6	N.C.
7	C SYNC	8	XHD OUT
9	GND	10	GND

[LCD type check]

By measuring the resistor value between Pin ⑥ of CN5502 and Pin ⑩ of CN5502, the type of LCD can be discriminated.

Resistor value	LCD type
1kΩ	LCD TYPE S
1.5kΩ	LCD TYPE C

PD-117 board



1. LCD Initial Data Input

Mode	Camera
Subject	Arbitrary
Adjustment Page	7
Adjustment Address	A8 to AB, C4 to D2, E3 to ED, EF to F3

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, and input the data in the following table.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.
3) Select page: 0, address: 01, and set data: 00.

Address	Data	Remark
A8	E3	Fixed data
A9	E3	Fixed data
AA	E3	Fixed data
AB	F7	Fixed data
C4	45	Fixed data
C5	00	Fixed data
C6	90	Fixed data
C7	90	Fixed data
C8	66	Fixed data
C9	26	Fixed data
CA	00	Fixed data
CB	80	Fixed data
CC	13	Fixed data
CD	C9	Fixed data
CE	23	Fixed data
CF	1A	Fixed data
D0	08	Fixed data
D1	33	Fixed data
D2	33	Fixed data
E3	78	Fixed data
E4	91	Fixed data
E5	6E	VCO adj.
E6	63	VCO adj.
E7	8E	V-COM adj.
E8	29	RGB AMP adj.
E9	00	Fixed data
EA	C3	COM AMP adj.
EB	60	White balance adj.
EC	65	White balance adj.
ED	50	Contrast adj.
EF	10	Fixed data
F0	6B	Fixed data
F1	9F	Fixed data
F2	1F	Fixed data
F3	DA	Fixed data

2. VCO Adjustment (PD-117 board)

Set the VCO free-run frequency. If deviated, the LCD screen will be blurred.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ⑧ of CN5502 (XHD OUT)
Measuring Instrument	Frequency counter
Adjustment Page	7
Adjustment Address	E5, E6
Specified Value	f = 15625 ± 30Hz

Note: Refer to "LCD type check" for the discrimination of the LCD type.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: E5, change the data and set the XHD OUT frequency (f) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 7, address: E5, read the data, and this data is named D_{E5}.
5) Convert D_{E5} to decimal notation, and obtain D_{E5}'. (Refer to Table 5-4-1. Hexadecimal-decimal Conversion Table.)
6) Calculate D_{E6}' using following equations (Decimal calculation), convert it to a hexadecimal number, and input to address: E6.

   LCD TYPE S:

   When $D_{E5}' \geqq 20$

   $D_{E6}' = D_{E5}' - 20$

   When $D_{E5}' < 20$

   $D_{E6}' = 00$

   LCD TYPE C:

   When $D_{E5}' \geqq 22$

   $D_{E6}' = D_{E5}' - 22$

   When $D_{E5}' < 22$

   $D_{E6}' = 00$
7) Press the PAUSE button.
8) Select page: 0, address: 01, and set data: 00.

3. RGB AMP Adjustment (PD-117 board)

Set the D range of the RGB decoder used to drive the LCD to the specified value. If deviated, the LCD screen will become blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ③ of CN5502 (VG) External trigger : Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	E8
Specified Value	LCD TYPE S: A = 3.63 ± 0.05V LCD TYPE C: A = 3.00 ± 0.05V

Note1: Press the DISPLAY button and erase the screen indictors on the LCD screen.

Note2: Refer to "LCD type check" for the discrimination of the LCD type.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: E8, change the data and set the voltage (A) between the reversed waveform pedestal and non-reversed waveform pedestal to the specified value.
   (The data of address: E8 should be "00" to "3F".)
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

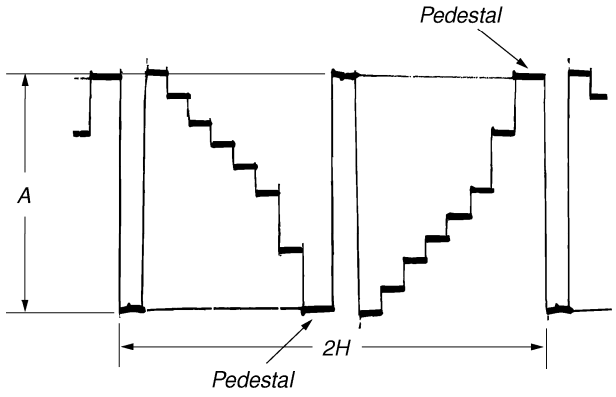


Fig. 5-1-19.

4. Contrast Adjustment (PD-117 board)

Set the level of the VIDEO signal for driving the LCD to the specified value. If deviated, the screen image will be blackish or saturated (whitish).

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ③ of CN5502 (VG) External trigger : Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	ED
Specified Value	LCD TYPE S: A = 3.68 ± 0.07V LCD TYPE C: A = 2.84 ± 0.07V

Note: Refer to "LCD type check" for the discrimination of the LCD type.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: ED, change the data and set the voltage (A) between the pedestal (0 IRE) and 100 IRE to the specified value.
   (The data of address: ED should be "00" to "7F".)
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

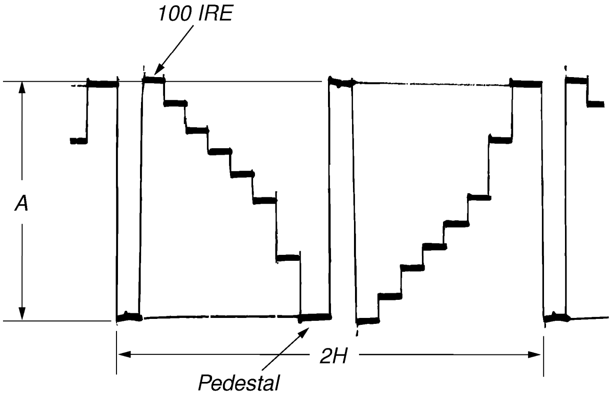


Fig. 5-1-20.

5. COM AMP Adjustment (PD-117 board)

Set the common electrode drive signal level of LCD to the specified value.

Mode	Camera
Subject	Arbitrary
Measurement Point	Pin ④ of CN5502 (PANEL COM)
Measuring Instrument	Oscilloscope
Adjustment Page	7
Adjustment Address	EA
Specified Value	LCD TYPE S: A = 6.40 ± 0.05V LCD TYPE C: A = 4.88 ± 0.05V

Note: Refer to "LCD type check" for the discrimination of the LCD type.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: EA, change the data and set the PANEL COM signal level (A) to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

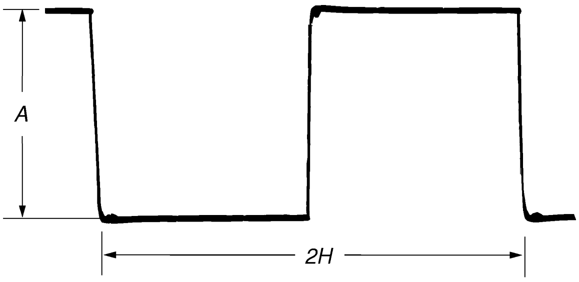


Fig. 5-1-21.

6. V-COM Adjustment (PD-117 board)

Set the DC bias of the common electrode drive signal of LCD to the specified value.
If deviated, the LCD display will move, producing flicker and conspicuous vertical lines.

Mode	Camera
Subject	Arbitrary
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	7
Adjustment Address	E7
Specified Value	The brightness difference between the section A and section B is minimum.

Note1: Perform "RGB AMP Adjustment", "Contrast Adjustment" and "COM AMP Adjustment" before this adjustment.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: E7, change the data so that the brightness of the section A and that of the section B is equal.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

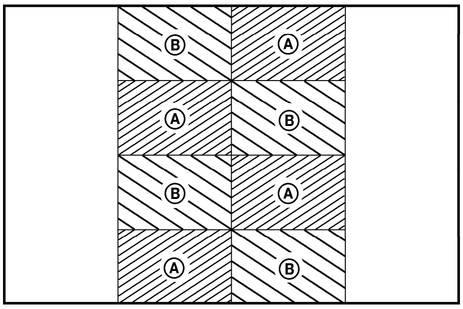


Fig. 5-1-22.

7. White Balance Adjustment (PD-117 board)

Correct the white balance.
If deviated, the LCD screen color cannot be reproduced.

Mode	Camera
Subject	Arbitrary
Measurement Point	Check on LCD display
Measuring Instrument	
Adjustment Page	7
Adjustment Address	EB, EC
Specified Value	The LCD screen should not be colored.

Note1: Check the white balance only when replacing the following parts. If necessary, adjust them.
1. LCD panel
2. Light induction plate
3. IC5501

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 7, address: EB and EC, and set the data to the initial value.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.

Address	EB	EC
Data	60	65

3) Check that the LCD screen is not colored. If colored, change the data of page: 7, address: EB and EC so that the LCD screen is not colored.
   Note: To write in the non-volatile memory (EEPROM), press the PAUSE button of the adjustment remote commander each time to set the data.
4) Select page: 0, address: 01, and set data: 00.

5-2. MECHANISM SECTION ADJUSTMENT

Mechanism Section adjustments, checks, and replacement of mechanism parts, refer to the separate volume “8mm Video Mechanism Adjustment Manual Ⅶ B Mechanism ”.

2-1. OPERATING WITHOUT CASSETTE

1) Refer to “Section 2. DISASSEMBLY” and supply the power with the cabinet assembly removed. (So that the mechanical deck can be operated.)
2) Connect the adjustment remote commander to the LANC jack.
3) Turn on the HOLD switch of the adjustment remote commander.
4) Close the cassette compartment without loading a cassette and complete loading.
5) Select page: 0, address: 01, and set data: 01.
6) Select page: F, address: 22, set data: 81, and press the PAUSE button of the adjustment remote commander.
7) Select page: D, address: 10, set data: 10, and press the PAUSE button of the adjustment remote commander.
8) Disconnect the power supply of the unit.
   By carrying out the above procedure, the unit can be operated without loading a cassette.
   Be sure to carry out “Processing after Operations” after checking the operations.
   Set the data of page: D, address: 10 to the following if the sensor ineffective mode, forced VTR power supply On mode or forced camera power supply ON mode are to be used together.

Forced VTR power ON mode	12
Forced camera power ON mode	11

[Procedure after checking operations]

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 22, set data: 80, and press the PAUSE button of the adjustment remote commander.
3) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.
5) Disconnect the power supply of the unit.

2-2. TAPE PATH ADJUSTMENT

1. Preparations for Adjustment

1) Clean the tape path face (tape guide, capstan shaft, pinch roller).
2) Connect the adjustment remote commander to the LANC jack.
3) Turn on the HOLD switch of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 01.
5) Select page: F, address: 22, set data: 88, and press the PAUSE button of the adjustment remote commander.
   (Be sure to perform “Processing after operation” after completing adjustments.)
6) Connect the oscilloscope to VC-234 board CN982 via CPC-7 jig (J-6082-382-A).
   Channel 1: VC-234 board, CN982 Pin ⑥
   External trigger: VC-234 board, CN982 Pin ⑪
7) Playback an alignment tape for tracking. (WR5-1CP)
8) Check that the oscilloscope RF waveform is flat at the entrance and exit.
   If not flat, adjust according to the separate volume “8mm Video Mechanical Adjustment Manual Ⅶ B Mechanism ”.
9) Perform “Processing after operations”, after completing adjustment.

CN982 of VC-234 board

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	9	RF AGC OUT
2	XCPC IN	10	REC RF
3	IR VIDEO	11	RF SWP
4	AFC F0	12	CAP FG
5	BPF MONI	13	EVF BL
6	PB RF	14	EVF BL 4.75V
7	RF AGC IN	15	VCO
8	REG GND	16	EVF VG

Table 5-2-1.

[Procedure after operations]

1) Connect the adjustment remote commander, and turn on the HOLD switch.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: F, address: 22, set data: 80, and press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.
5) Remove the power supply from the unit.

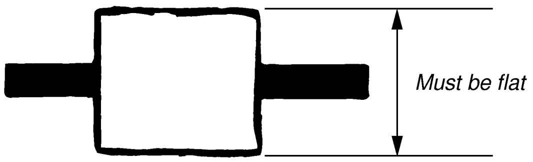


Fig. 5-2-1.

5-3. VIDEO SECTION ADJUSTMENTS

3-1. PREPARATIONS BEFORE ADJUSTMENTS

Use the following measuring instruments for video section adjustments.

3-1-1. Equipment to Required

1) TV monitor
2) Oscilloscope (dual-phenomenon, band width above 30 MHz with delay mode) (Unless specified otherwise, use a 10 : 1 probe.)
3) Frequency counter
4) Pattern generator with video output terminal
5) Digital voltmeter
6) Audio generator
7) Audio level meter
8) Audio distortion meter
9) Audio attenuator
10) Regulated power supply
11) Alignment tapes
    - For tracking adjustment (WR5-1CP)
      Parts code : 8-967-995-07
    - For video frequency characteristics adjustment (WR5-7CE)
      Parts code : 8-967-995-18
    - For checking Standard 8 mode operations
    - For LP (WR5-4CL)
      Parts code : 8-967-995-56
    - For SP (WR5-5CSP)
      Parts code : 8-967-995-47

    Note: The following alignment tapes can also be used.
    1) WR5-3CL (8-967-995-36)
    2) WR5-4CSP (8-967-995-46)

    - For checking Hi8 mode operations
    - For LP (WR5-8CLE)
      Parts code : 8-967-995-57
    - For SP (WR5-8CSE)
      Parts code : 8-967-995-48
    - For Checking AFM stereo operations (WR5-9CS)
      Parts code : 8-967-995-28
    - For BPF adjustment (WR5-11CS)
      Parts code : 8-967-995-76
12) Adjustment remote commander (J-6082-053-B)
13) CPC-7 jig (J-6082-382-A)
14) Power code (J-6082-223-A)

    Note: Connect the adjustment remote commander to the LANC jack, and set the HOLD switch to the “ADJ” side.
15) AFM DEV jig (J-6082-312-A)
16) IR receiver jig (J-6082-383-A)

3-1-2. Precautions on Adjusting

Note1: TR model / TRV model
TR model: CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV model: CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

1) The adjustments of this unit are performed in the VTR mode or camera mode.
   To set to the VTR mode, set the power switch to “VTR or PLAYER” or set the “Forced VTR Power ON mode” using the adjustment remote commander (Note 2).
   To set to the Camera mode, set the power switch to “CAMERA” or set the “Forced Camera Power ON mode” using the adjustment remote commander (Note 3).
   After completing adjustments, be sure to exit the “Forced VTR Power ON Mode” or “Forced Camera Power ON Mode”. (Note 4)
2) By setting the “Forced VTR Power ON mode” or “Forced Camera Power ON mode”, the video section can be operate even if the front panel block (MA-374/375 board, power switch, microphone unit) has been removed. When removing the front panel block, disconnect the following connector.
   1. VC-234 board CN972 (20P 0.5mm)
3) The cabinet (R) (Camera function switch (CF-66/67 board), LCD block (TRV model only), Viewfinder) need not be connected. But removing the cabinet (R) (removing the VC-234 board CN975) means removing the lithium 3V power supply (CF-66/67 board BH001), data such as date, time, user-set menus will be lost. After completing adjustments, reset these data. If the cabinet (R) has been removed, the self-diagnosis data, data on history of use (total drum rotation time etc.) will be lost. Before removing, note down the self-diagnosis data and data on history use (data of page: 2, address: A2 to AA). (Refer to the “Service Mode” for the data on the history use.)
   To remove the cabinet (R), disconnect the following connectors.
   1. VC-234 board CN975 (45P, 0.5mm)
   2. DD-134 board CN933 (8P, 1.0mm)(TRV model only)
4) The video light board (VL-28/29 board) need not be connected. To remove, disconnect the following connector. (Except for CCD-TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
   1. VL-28/29 board CN151 (8P, 0.5mm)
5) The lens block (CD-239/240 board) need not be connected. To remove, disconnect the following connectors.
   1. VC-234 board CN501 (14P, 0.5mm)
   2. VC-234 board CN551 (24P, 0.5mm)

Note2: Setting the “Forced VTR Power ON” mode (VTR mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 02, and press the PAUSE button of the adjustment remote commander.
   The above procedure will enable the VTR power to be turned on with the front panel block removed.
   After completing adjustments, be sure to exit the “Forced VTR Power ON mode”.

Note3: Setting the “Forced Camera Power ON” mode (Camera mode)
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 01, and press the PAUSE button of the adjustment remote commander.
   The above procedure will enable the camera power to be turned on with the front panel block removed.
   After completing adjustments, be sure to exit the “Forced Camera Power ON mode”.

Note4: Exiting the “Forced Power ON” mode
1) Select page: 0, address: 01, and set data: 01.
2) Select page: D, address: 10, set data: 00, and press the PAUSE button of the adjustment remote commander.
3) Select page: 0, address: 01, and set data: 00.

3-1-3. Adjusting Connectors

Some of the adjusting points of the video section are concentrated at VC-234 board CN982. Connect the measuring instruments via the CPC-7 jig (J-6082-382-A). The following table lists the pin numbers and signal names of CN982.

Pin No.	Signal Name	Pin No.	Signal Name
1	LANC SIG	9	RF AGC OUT
2	XCPC IN	10	REC RF
3	IR VIDEO	11	RF SWP
4	AFC F0	12	CAP FG
5	BPF MONI	13	EVF BL
6	PB RF	14	EVF BL 4.75V
7	RF AGC IN	15	VCO
8	REG GND	16	EVF VG

Table 5-3-1.

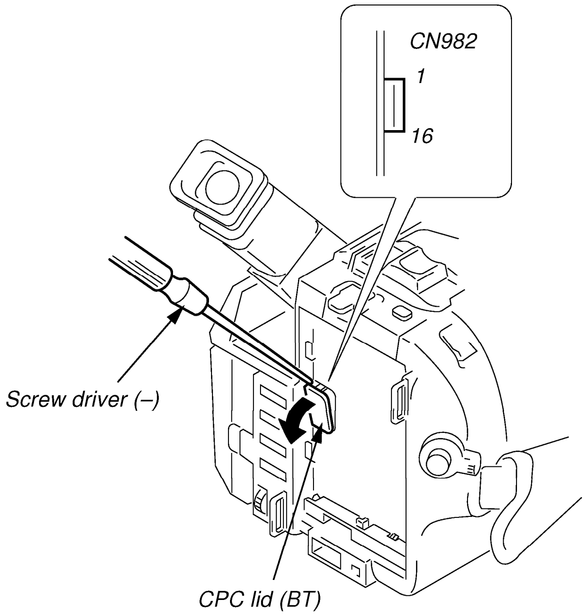


Fig. 5-3-1.

3-1-4. Connecting the Equipments

Connecting the measuring instruments as shown in Fig. 5-3-2 and perform the adjustments.

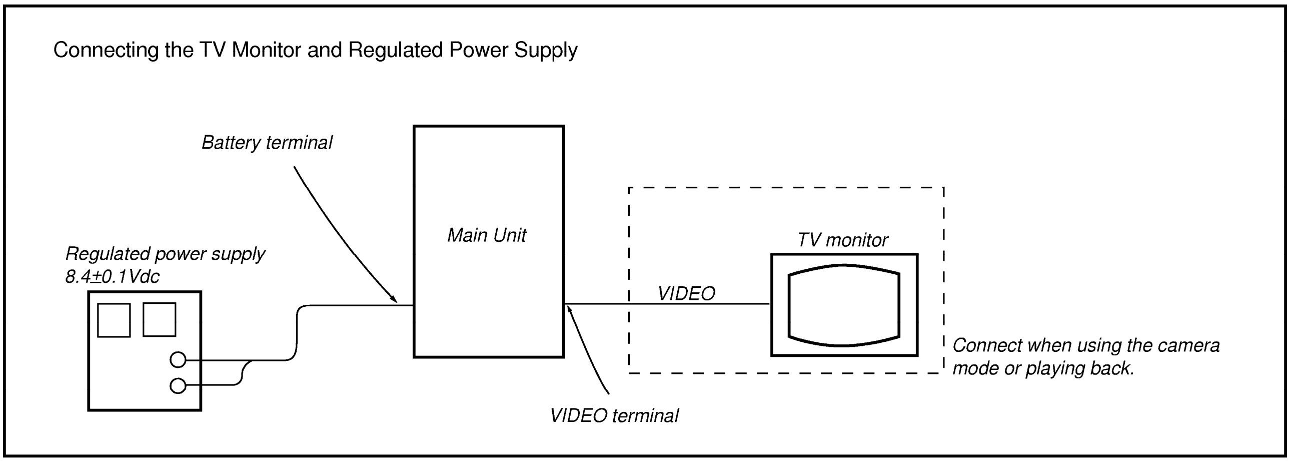

Connecting the TV Monitor and Regulated Power Supply
Battery terminal
Main Unit
TV monitor
Regulated power supply
8.4±0.1Vdc
VIDEO
Connect when using the camera mode or playing back.
VIDEO terminal

Fig. 5-3-2.

3-1-5. Alignment Tape

The following table lists alignment tapes which are available. Use the tape specified in the signal column for each adjustment. If the type of tape to be used for checking operations is not specified, use whichever type.

Name	Record-ing mode	Tape type	Tape speed	Usage
Tracking WR5-1CP	Standard 8 mm	MP	SP	Tape path adjustment Switching position adjustment
Video frequency characteristics WR5-7CE	Hi8	ME	LP	Frequency characteristics adjustment
Operation check (SP mode) WR5-5CSP	Standard 8 mm	MP	SP	Checking operations
Operation check (SP mode) WR5-8CSE	Hi8	ME	SP	
Operation check (LP mode) WR5-4CL	Standard 8 mm	MP	LP	
Operation check (LP mode) WR5-8CLE	Hi8	ME	LP	
AFM stereo Operation check WR5-9CS	Standard 8 mm	MP	SP	AFM stereo Checking operations
BPF adjustment WR5-11CS	Hi8	MP	SP	BPF adjustment

Fig. 5-3-3. Shows the color bar signals recorded on the alignment tape.

Note : Measure using the VIDEO terminal (Terminated at 75 Ω).

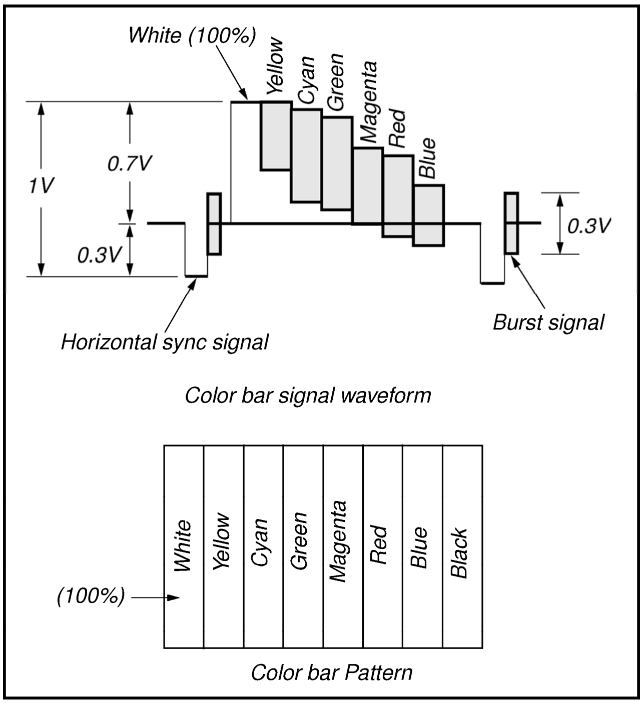

White (100%)
Yellow
Cyan
Green
Magenta
Red
Blue
1V
0.7V
0.3V
0.3V
Horizontal sync signal
Burst signal
Color bar signal waveform
White
Yellow
Cyan
Green
Magenta
Red
Blue
Black
(100%)
Color bar Pattern

Fig. 5-3-3. Color Bar Signals of the Alignment Tape

3-1-6. Input/Output Level and Impedance

Video input/output
Phono jack, 1 Vp-p, 75Ω,
unbalanced, sync negative
S video input/output (CCD-TR717E/TR918E/TRV67E/TRV87E only)
4-pin mini DIN
Luminance signal:
1Vp-p, 75Ω, unbalanced, sync negative
Chrominance signal:
0.286Vp-p 75Ω, unbalanced
Audio input/output
Phono jack,
Input: –7.5 dBs, input impedance more than 47 kΩ
Output: –7.5 dBs, (at load impedance 47 kΩ), impedance less than 2.2 kΩ

3-1-7. Recording Mode (Standard 8/Hi8) switching (CCD-TR717E/TR918E/TRV67E/TRV87E)

The record mode (Standard 8/Hi8) of this unit switches as shown in the following table. The playback mode (Standard 8/Hi8) switches automatically according to the recording mode of the tape played back.

Tape Used	Recording Mode
ME	Hi8
Hi8 MP	
MP	Standard 8

3-2. SYSTEM CONTROL SYSTEM ADJUSTMENT

1. Initialization of D, E, F, 7 Page Data

If the D, E, F, 7 page data is erased due to some reason, perform "1-2. INITIALIZATION OF D, E, F, 7 PAGE DATA", of "5-1. CAMERA SECTION ADJUSTMENT"

3-3. SERVO SYSTEM ADJUSTMENTS

1. CAP FG Offset Adjustment (VC-234 board)

Improve the capstan servo characteristic. If it is not correct. jitters will increase.

Mode	Camera recording (SP mode)
Subject	Arbitrary
Measurement Point	Pin ⑫ of CN982 (CAP FG)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	64
Specified value	Duty = 50 ± 1 %

Adjusting method:

1) Set to the Camera recording mode (SP mode).
2) Select page: 0, address: 01, and set data: 01.
3) Select page: 6, address: 01, set data: 81, and press the PAUSE button of the adjustment remote commander. (to start up automatic CAP FG offset adjustment.)
4) Select page: 6, address: 02, and check that the data is "01".
5) Check that Duty of CAP FG signal satisfies the specified value. If not, select page: 6, address: 01, set data: 00, and press the PAUSE button, and then, repeat steps 1) to 5).
6) Select page: 6, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
7) Select page: 0, address: 01, and set data: 00.

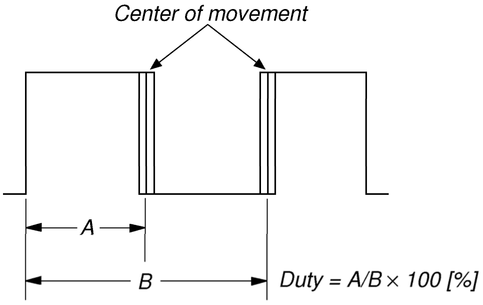


Fig. 5-3-4.

2. Switching Position Adjustment (VC-234 board)

If deviated in this case causes switching noise or jitter on the played back screen.

Mode	Playback
Signal	Alignment tape: For tracking adjustment (WR5-1CP)
Measurement Point	CH1: Pin ⑪ of CN982 (RF SWP) CH2: Pin ⑥ of CN982 (PB RF)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	62, 63
Specified Value	t1 = 0 ± 10 µsec

Adjusting Method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 22, set data: C0, and press the PAUSE button of the adjustment remote commander.
3) Select page: F, address: 62, change the data and minimize "t1", and then press the PAUSE button of the adjustment remote commander. (Coarse adjustment)
4) Select page: F, address: 63, change the data and adjust so that the switching position (t1) becomes the specified value. (Fine adjustment)
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: F, address: 22, set data: 80, and press the PAUSE button of the adjustment remote commander.
7) Select page: 0, address: 01, and set data: 00.

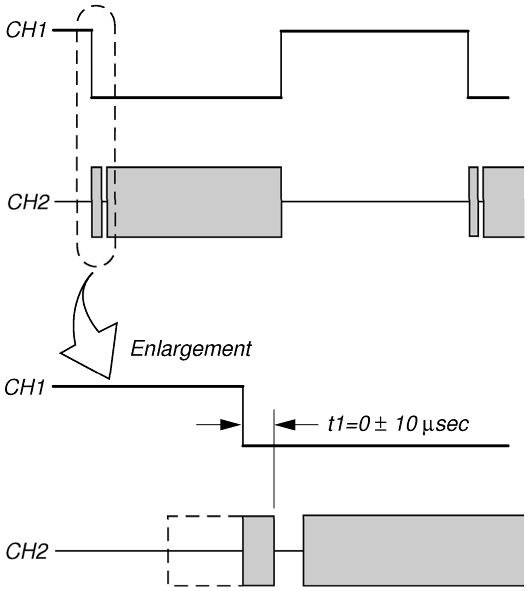


Fig. 5-3-5.

3-4. VIDEO SYSTEM ADJUSTMENTS

Video system adjustments must be performed in the following order.

[Adjusting Order]

1. 28MHz origin oscillation adjustment
2. AFC f_0 adjustment
3. Filter f_0 adjustment
4. Y OUT level adjustment
5. C OUT level adjustment
6. REC Y current adjustment
7. REC C/AFM Current Adjustment

1. 28 MHz Origin Oscillation Adjustment (VC-234 board)

Set the frequency of the clock for synchronization.
If deviated, the synchronization will be disrupted and the color will become inconsistent.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin (81) of IC201 or pin ⑫ of IC501
Measuring Instrument	Frequency counter
Adjustment Pag	F
Adjustment Address	4D
Specified Value	f=14187500 ± 55Hz

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 61, and set data: 30.
4) Select page: F, address: 4D, change the data and set the clock frequency (f) to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 6, address: 61, and set data: 10.
7) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
8) Select page: 0, address: 01, and set data: 00.

VC-234 BOARD

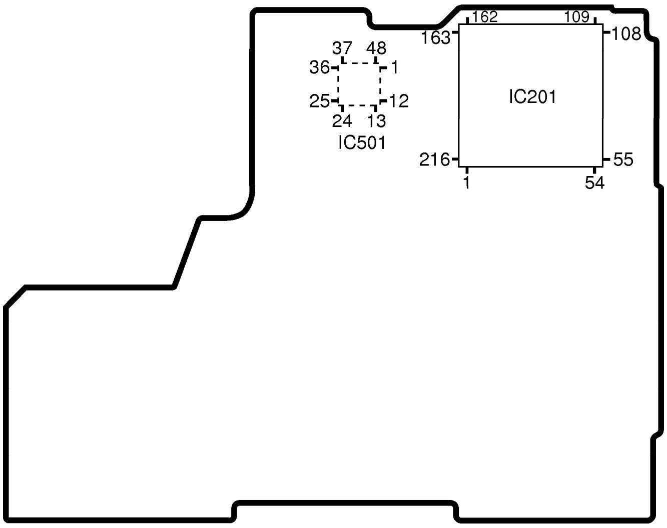


Fig. 5-3-6.

2. AFC f_0 Adjustment (VC-234 board)

Adjust the pull-in range of the A/D converted clock generator during playback.

Mode	VTR stop
Signal	No signal
Measurement Point	Display data of page: 6, address: 02
Measuring Instrument	Adjustment remote commander
Adjustment Page	F
Adjustment Address	65
Specified Value	01

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 4D, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 01, set data: C5, and press the PAUSE button.
   (The AFC fo adjustment is performed and the adjustment data is stored in page: F, address: 65.)
4) Select page: 6, address: 02, and check that the data is “01”.
5) Select page: 6, address: 01, set data: 00, and press the PAUSE button.
6) Select page: 2, address: 01, set data: 00, and press the PAUSE button.
7) Select page: 0, address: 01, and set data: 00.

3. Filter f_0 Adjustment (VC-234 board)

Adjust the f_0 frequency of the IC641 built-in filter.

Mode	VTR stop
Signal	No signal
Measurement Point	Pin ③ of CN982 (IR VIDEO)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: ON)
Adjustment Page	F
Adjustment Address	66
Specified Value	Minimum residual chroma signal components

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 4F, and press the PAUSE button of the adjustment remote commander.
3) Select page: 2, address: 05, and set data: 40.
4) Select page: F, address: 66, change the data and minimize the residual chroma signal components (A).
   (The data of address: 66 should be "70" to "7F".)
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
7) Select page: 2, address: 05, and set data: 00.
8) Select page: 0, address: 01, and set data: 00.

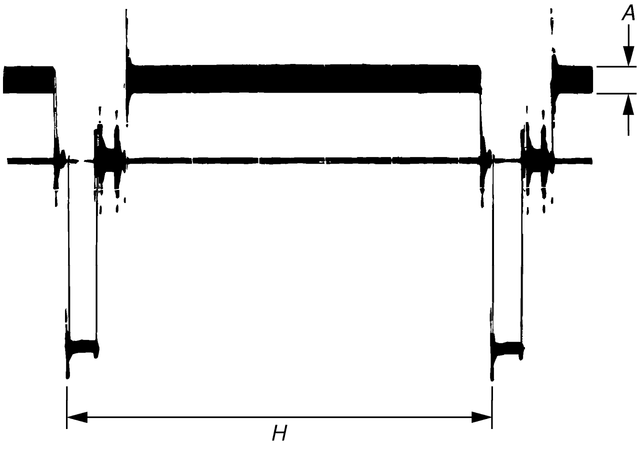


Fig. 5-3-7.

4. Y OUT Level Adjustment (VC-234 board)

Set the Y signal output level. (Adjust the D/A converter out put level of IC641.)

Mode	VTR stop
Signal	No signal
Measurement Point	Hi8 model: Y signal terminal of S VIDEO terminal (75Ω terminated) Standard8 model: VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	67
Specified Value	A=300 ± 5mV

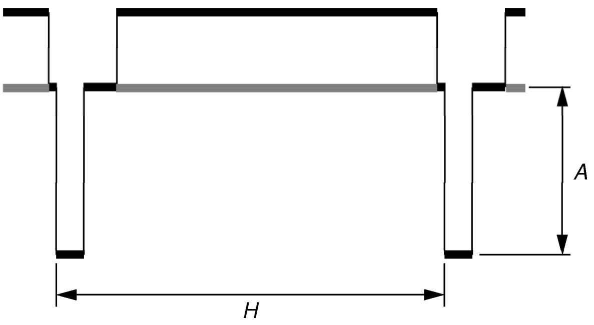
Note1: Hi8 model:
Insert the plug into the S VIDEO terminal.
Standard8 model:
Insert the plug into the VIDEO terminal.

Note2: Hi8 model:
CCD-TR717E/TR918E/TRV67E/TRV87E
Standard8 model:
CCD-TR317E/TR417E/TR427E/TR617E/TRV37E/TRV47E/TRV48E/TRV57E

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 61, and set data: 30.
4) Select page: F, address: 67, change the data and set the SYNC level (A) to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 6, address: 61, and set data: 10.
7) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
8) Select page: 0, address: 01, and set data: 00.

Hi8 model



Standard8 model

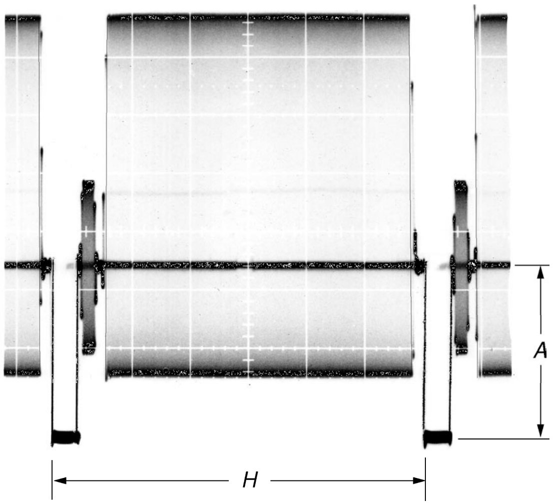


Fig. 5-3-8.

5. C OUT Level Adjustment (VC-234 board)

Set the chroma signal output level. (Adjust the D/A converter out put level of IC641.)

Mode	VTR stop
Signal	No signal
Measurement Point	Hi8 model: Chroma signal terminal of S VIDEO terminal (75Ω terminated) Standard8 model: VIDEO terminal (75Ω terminated)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	68
Specified Value	A=300 ± 5mV

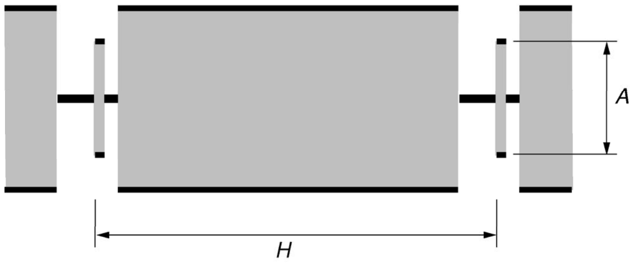
Note1: Hi8 model:
Insert the plug into the S VIDEO terminal.
Standard8 model:
Insert the plug into the VIDEO terminal.

Note2: Hi8 model:
CCD-TR717E/TR918E/TRV67E/TRV87E
Standard8 model:
CCD-TR317E/TR417E/TR427E/TR617E/TRV37E/TRV47E/TRV48E/TRV57E

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
3) Select page: 6, address: 61, and set data: 30.
4) Select page: F, address: 68, change the data and set the burst level (A) to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: 6, address: 61, and set data: 10.
7) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
8) Select page: 0, address: 01, and set data: 00.

Hi8 model



Standard8 model

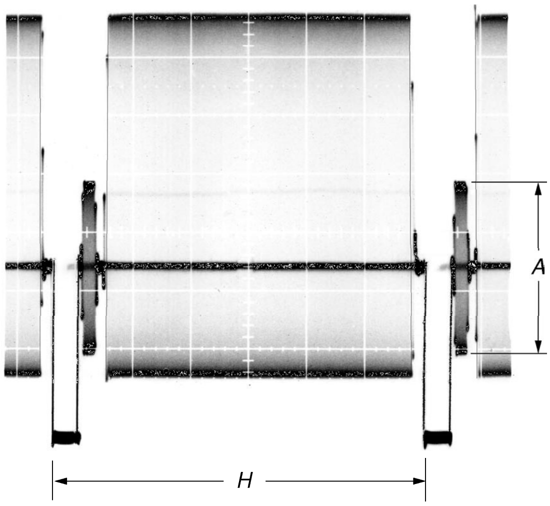


Fig. 5-3-9.

6. REC Y Current Adjustment (VC-234 board)

Adjust the Y FM signal recording current.

Mode	VTR recording (SP mode)	
Signal	No signal	
Measurement Point	Pin ⑩ of CN982 (REC RF)	
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: OFF)	
Adjustment Page	F	7
Adjustment Address	6A, 6B	F9
Specified Value	A=280 ± 5mV (Hi8 model) A=250 ± 5mV (Standard 8 model)	

Note: PLAYER model:
CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/
TRV87E :AEP, UK, EE, NE, RU
Hi8 model:
CCD-TR717E/TR918E/TRV67E/TRV87E
Standard8 model:
CCD-TR317E/TR417E/TR427E/TR617E/TRV37E/TRV47E/
TRV47E/TRV48E/TRV57E

Preparations only for the PLAYER model:
1) Select page: 0, address: 01, and set data: 01.
2) Only for the PLAYER model, select page: D, address: 14, after memorizing the data, set the bit value of bit1 to “1”. (Refer to “4-3, 3. Bit value discrimination” of “5-4. Service Mode”).
3) Select page: D, address: 15, and memorize the data.
4) Only for the PLAYER model, select page: D, address: 15, and set the bit value of bit7 to “0”.
5) Insert a tape, and set to recording mode. (Use the wireless remote commander of 8mm VCR, or connect Pin (93) of IC803 of VC-234 board and GND with 4.7kΩ resistor for a second.)
4.7kΩ resistor: 1-249-425-11

Adjusting method:
1) Insert a tape, and set to recording mode.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: E, address: FB, set data: 06, and press the PAUSE button of the adjustment remote commander.
4) Select page: F, address: 71, after note down the data, set data: 00, and press the PAUSE button.
5) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
6) Select page: 6, address: 63, and set data: 01.
7) Select page: F, address: 6B, change the data and set the Y signal level (A) to the specified value.
8) Press the PAUSE button.
9) Select page: F, address: 6A, and set the same data as page: F, address: 6B, and press the PAUSE button.
10) Only for Hi8 model, select page: F, address: 6B, and read the data (D_{6B}).
11) Only for Hi8 model, convert D_{6B} to decimal notation, and obtain D_{6B}'. (Refer to tabel 5-4-1. Hexadecimal-decimal conversion table.)
12) Only for Hi8 model, calculate D_{F9}' using following equations (Decimal calculation), convert it to a hexadecimal number, and input to page: 7, address: F9.
When $D_{6B}' \geqq 243$ (When $D_{6B} \geqq F3$)
$D_{F9}' = 255$ ($D_{F9} = FF$)
When $D_{6B}' < 243$ (When $D_{6B} < F3$)
$D_{F9}' = D_{6B}' + 12$
13) Press the PAUSE button.
14) Select page: F, address: 71, set the data noted down at step 4), and press the PAUSE button.
15) Select page: E, address: FB, set data: 04, and press the PAUSE button.
16) Select page: 6, address: 63, and set data: 00.
17) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
18) Select page: 0, address: 01, and set data: 00.

Processing after completed adjustment only for for the PLAYER model:
1) Select page: 0, address: 01, and set data: 01.
2) Only for the PLAYER model, select page: D, address: 14, and set the data memorized at step 2) of “Preparations only for the PLAYER model”.
3) Press the PAUSE button.
4) Only for the PLAYER model, select page: D, address: 15, and set the data memorized at step 3) of “Preparations only for the PLAYER model”.
5) Press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

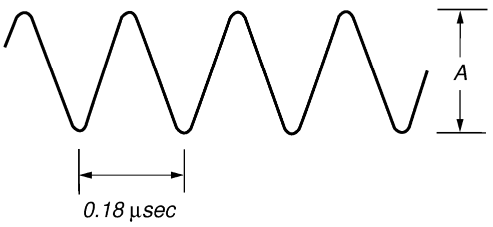


Fig. 5-3-10.

VC-234 BOARD

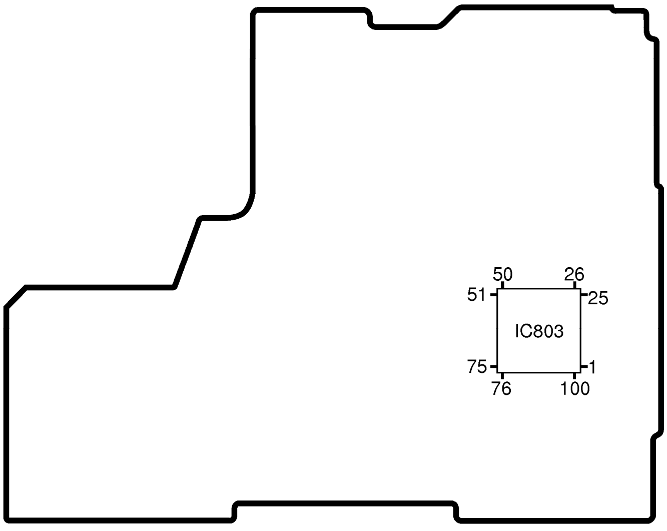


Fig. 5-3-11.

7. REC C/AFM Current Adjustment

Note: PLAYER model:
CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/
TRV87E: AEP, UK, EE, NE, RU
Hi8 model:
CCD-TR717E/TR918E/TRV67E/TRV87E
Standard8 model:
CCD-TR317E/TR417E/TR427E/TR617E/TRV37E/TRV47E/
TRV47E/TRV48E/TRV57E

7-1. Preparations only for the PLAYER model

1) Select page: 0, address: 01, and set data: 01.
2) Only for the PLAYER model, select page: D, address: 14, after memorizing the data, set the bit value of bit1 to “1”. (Refer to “4-3, 3. Bit value discrimination” of “5-4. Service Mode”).
3) Select page: D, address: 15, and memorize the data.
4) Only for the PLAYER model, select page: D, address: 15, and set the bit value of bit7 to “0”.
5) Insert a Hi8 ME tape, and set to VTR recording mode. (Use the wireless remote commander of 8mm VCR, or connect Pin (93) of IC803 of VC-234 board and GND with 4.7kΩ resistor for a second.)
   4.7kΩ resistor: 1-249-425-11

7-2. REC C Current Check (VC-234 board)

Check the recording current levels of the REC Chroma signal. If it is too low, chroma signal noise in played back picture will be increased. If too high, Y signal noises will increase and white modulation noises will be produced.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	Pin ⑩ of CN982 (REC RF)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: OFF)
Specified Value	A=54.0 ± 4.0mV (Hi8 model) A=48.2 ± 3.0mV (Standard 8 model)

Adjusting method:

1) Insert a Hi8 ME tape, and set to recording mode.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: 2, address: 01, set data: 41, and press the PAUSE button of the adjustment remote commander.
4) Select page: 6, address: 61, and set data: 30.
5) Select page: E, address: FB, set data: 05, and press the PAUSE button.
6) Select page: F, address: 71, after note down the data, set data: 00, and press the PAUSE button.
7) Check that the REC chroma signal level (A) satisfies the specified value, and note down the signal level.
8) Select page: F, address: 71, set the data noted down at step 6), and press the PAUSE button.
9) Select page: E, address: FB, set data: 04, and press the PAUSE button.
10) Select page: 6, address: 61, and set data: 10.
11) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
12) Select page: 0, address: 01, and set data: 00.
13) Perform “REC AFM Current Adjustment” and “Processing after completed adjustment only for the PLAYER model”.

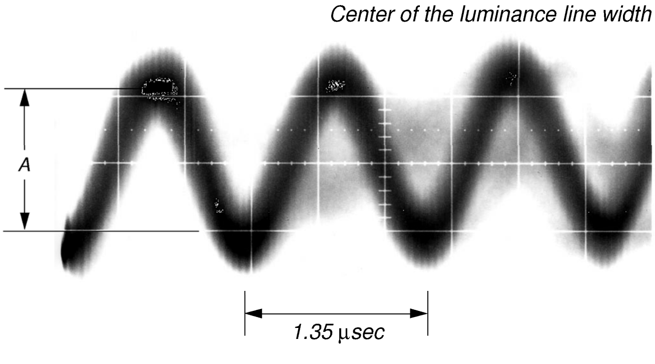


Fig. 5-3-12

7-3. REC AFM Current Adjustment (VC-234 board)

Set the recording levels of the REC AFM signal. If the level is too low, the audio S/N will be deteriorated. If too high, color beets will be produced on the self-recording / playback image.

Mode	VTR recording (SP mode)
Signal	No signal
Measurement Point	Pin ⑩ of CN982 (REC RF)
Measuring Instrument	Oscilloscope (20 MHz BW LIMIT: OFF)
Adjustment Page	F
Adjustment Address	71
Specified Value	A= (REC Chroma signal level) × 0.309 ± 0.9mV (Note2)

Note1: Only for the STEREO model, do not insert any plug into the AUDIO (R) terminal.

Note2: REC Chroma signal level is noted down at step 7) of "REC C Current Check".

Adjusting method:

1) Insert a Hi8 ME tape, and set to recording mode.
2) Select page: 0, address: 01, and set data: 01.
3) Select page: E, address: FB, set data: 07, and press the PAUSE button of the adjustment remote commander.
4) Select page: F, address: 71, change the data and set the REC AFM signal level (A) to the specified value.
5) Press the PAUSE button of the adjustment remote commander.
6) Select page: E, address: FB, set data: 04, and press the PAUSE button.
7) Select page: 0, address: 01, and set data: 00.
8) Perform "Processing after completed adjustment only for the PLAYER model".

7-4. Processing after completed adjustment only for the PLAYER model

1) Select page: 0, address: 01, and set data: 01.
2) Only for the PLAYER model, select page: D, address: 14, and set the data memorized at step 2) of "Preparations only for the PLAYER model".
3) Press the PAUSE button.
4) Only for the PLAYER model, select page: D, address: 15, and set the data memorized at step 3) of "Preparations only for the PLAYER model".
5) Press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

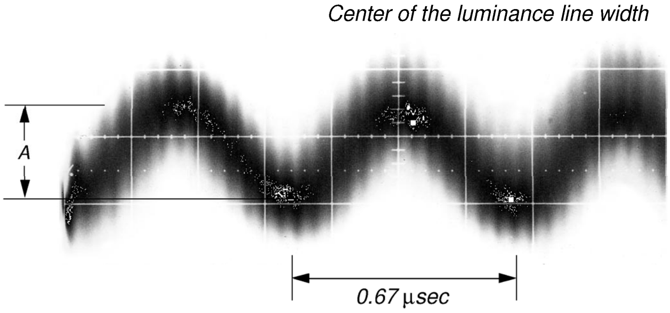


Fig. 5-3-13.

3-5. IR TRANSMITTER ADJUSTMENTS (CCD-TR918E/TRV87E)

Adjust using a IR receiver jig (J-6082-383-A).

Note : If the distance between the IR receiver jig and the camcorder is below 1m, cover the LASER LINK emitter with a ND filter. (For example, when the distance is 30cm to 50cm, cover the LASER LINK emitter with a ND filter 1.0.)

Switch setting:

LASER LINK .... ON (Red LED is lit)

1. IR Video Carrier Frequency Adjustment (VC-234 board)

Mode	Camera standby
Subject	Arbitrary
Measurement Point	Pin ⑤ of CN003 of IR receiver jig (RF) (Or Pin ⑯ of IC751 of VC-234 board)
Measuring Instrument	Frequency counter
Adjustment Page	F
Adjustment Address	80
Specified Value	f = 11.55 ± 0.05 MHz

Connection of Equipment

Connect the measuring device as shown in the following figure, and adjust.

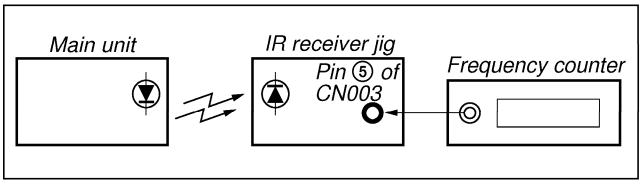


Fig. 5-3-14.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 37, and press the PAUSE button of the adjustment remote commander.
3) Select page: F, address: 80, change the data, and set the video carrier frequency (f) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
6) Select page: 0, address: 01, and set data: 00.

2. IR Video Deviation Adjustment (VC-234 board)

Mode	Camera standby
Subject	Arbitrary
Measurement Point	VIDEO OUT terminal of IR receiver jig (Terminated at 75Ω)
Measuring Instrument	Oscilloscope
Adjustment Page	F
Adjustment Address	7E
Specified Value	A = 0.87 ± 0.04 V

Connection of Equipment

Connect the measuring device as shown in the following figure, and adjust.

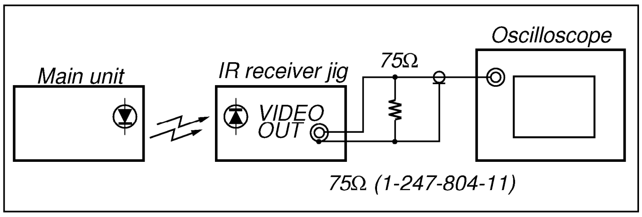


Fig. 5-3-15.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Select page: 2, address: 01, set data: 39, and press the PAUSE button of the adjustment remote commander.
3) Select page: F, address: 7E, and change the data, set the video signal amplitude (A) to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Select page: 2, address: 01, set data: 00, and press the PAUSE button of the adjustment remote commander.
6) Select page: 0, address: 01, and set data: 00.

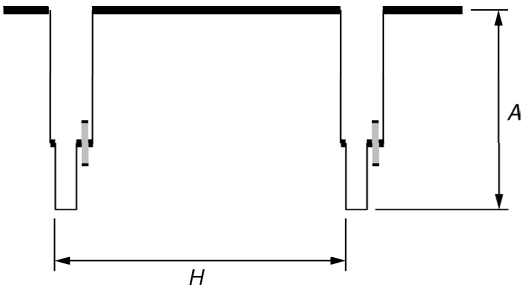


Fig. 5-3-16.

3. IR Audio Deviation Adjustment (VC-234 board)

Mode	VTR recording
Signal	Audio signal : 400Hz, –7.5dBs : L or R of AUDIO terminal Video signal : No signal : VIDEO terminal
Measurement Point	AUDIO L terminal and AUDIO R terminal of IR receiver jig (Terminated at 47kΩ)
Measuring Instrument	Audio level meter
Adjustment Page	F
Adjustment Address	7F
Specified Value	Signal level: –7.5 ± 2.0 dBs Level difference of L and R: Below 2dB

Connection of Equipment

Connect the measuring device as shown in the following figure, and adjust.

Adjusting method:

1) Select page: 0, address: 01, and set data: 01.
2) Connect the audio level meter to the AUDIO L terminal of the IR receiver jig.
3) Select page: F, address: 7F, change the data and set the 400Hz audio signal level to the specified value.
4) Press the PAUSE button of the adjustment remote commander.
5) Connect the audio level meter to the AUDIO R terminal of the IR receiver jig.
6) Check that the 400Hz audio signal level is within the specified value. If outside, repeat from step 2).
7) Select page: 0, address: 01, and set data: 00.

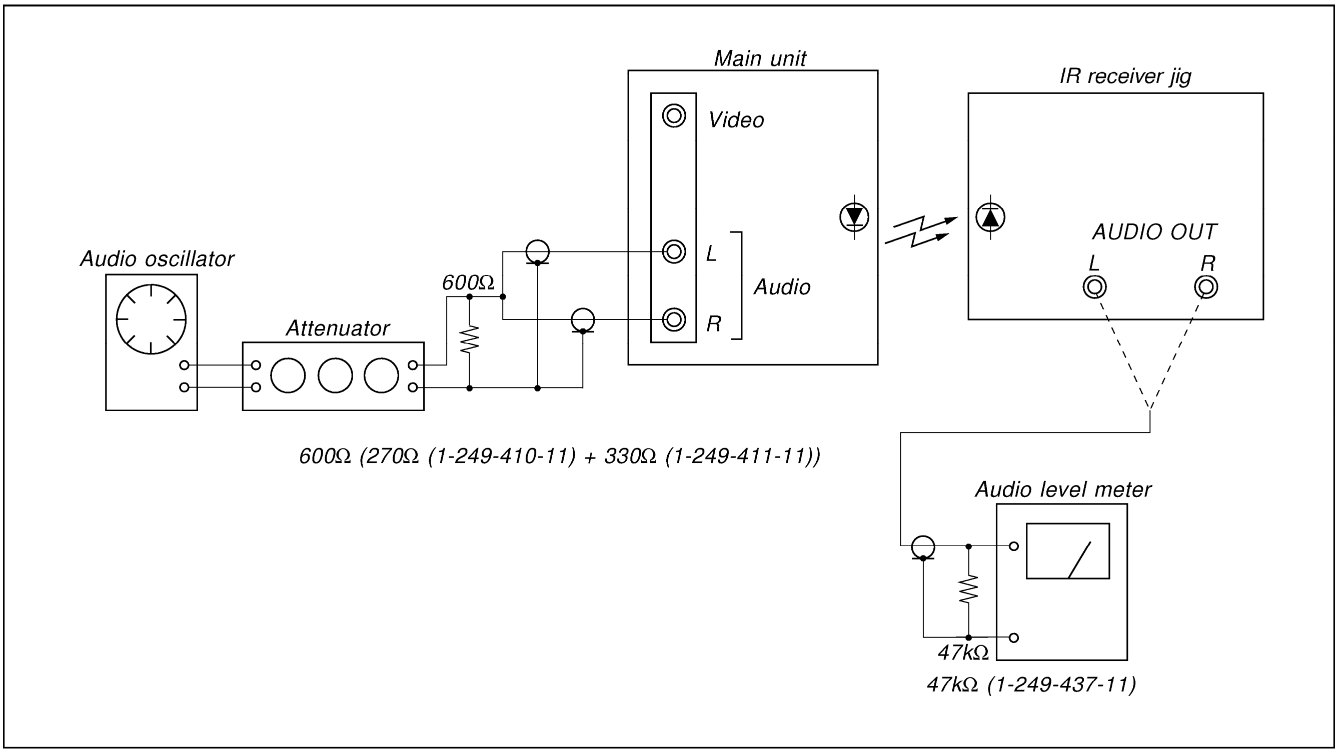

Main unit
IR receiver jig
Video
L
R
Audio
AUDIO OUT
L
R
Audio oscillator
600Ω
Attenuator
600Ω (270Ω (1-249-410-11) + 330Ω (1-249-411-11))
Audio level meter
47kΩ
47kΩ (1-249-437-11)

Fig. 5-3-17.

3-6. STEREO AUDIO SYSTEM ADJUSTMENT (CCD-TR918E/TRV87E)

- Perform the adjustment using color bar signal as a video signal input for the VIDEO terminal.
- The items to be adjusted for the R channel will be indicated within the [ ], in regard to the adjusting items to be adjusted for both L and R channels.
- Set the Hi-Fi sound switch in the menu display to “STEREO” position unless specified otherwise.

Note :

1) When inputting the audio signal, input same signal to both the L and R channels, unless otherwise.
2) Be sure insert the plug (Shorting plug or dummy plug, etc) into the AUDIO terminal (Right). If the plug is not inserted, the monaural mode will be set, and correct adjustments can not be carried out.

   [Monaural mode]

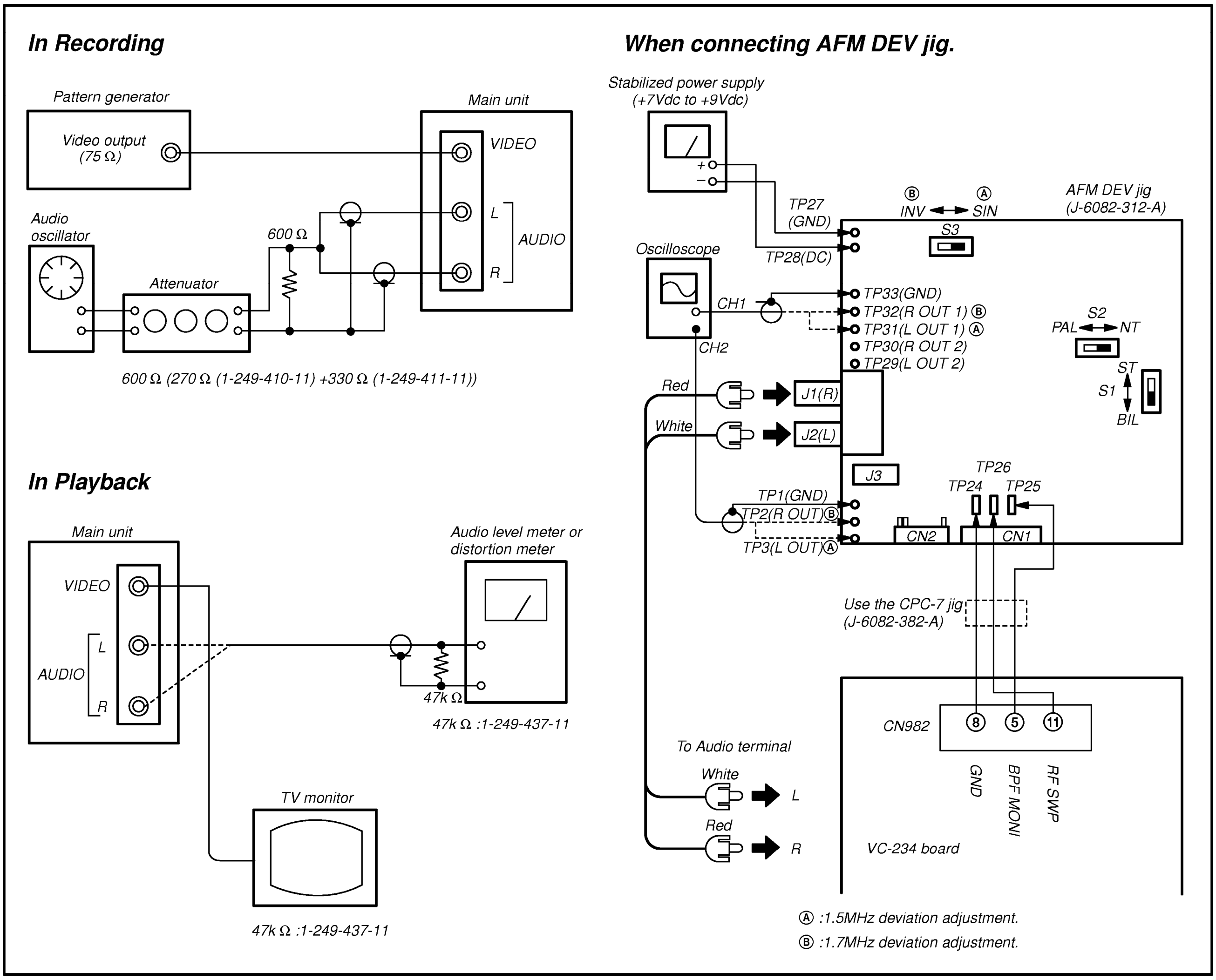
   During recording .... REC AFM RF 1.7MHz carrier will not be output.
   During playback .... The L + R signal will be output from the AUDIO terminal (Left).

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments in addition to the video system measuring instruments as shown in Fig. 5-3-18, and perform adjustments at the power switch [VTR or PLAYER] position.

[Adjustment Procedure]

1) 1.5MHz deviation adjustment
2) 1.7MHz deviation adjustment
3) BPF adjustment


In Recording
Pattern generator
Video output (75 Ω)
Main unit
VIDEO
L
AUDIO
R
Audio oscillator
600 Ω
Attenuator
600 Ω (270 Ω (1-249-410-11) +330 Ω (1-249-411-11))
In Playback
Main unit
VIDEO
L
AUDIO
R
Audio level meter or distortion meter
47k Ω
47k Ω :1-249-437-11
TV monitor
47k Ω :1-249-437-11
When connecting AFM DEV jig.
Stabilized power supply (+7Vdc to +9Vdc)
+
−
TP27 (GND)
TP28(DC)
Ⓑ INV ◄► Ⓐ SIN
S3
AFM DEV jig (J-6082-312-A)
Oscilloscope
CH1
CH2
TP33(GND)
TP32(R OUT 1) Ⓑ
TP31(L OUT 1) Ⓐ
TP30(R OUT 2)
TP29(L OUT 2)
S2
PAL ◄► NT
ST
S1
BIL
Red
J1(R)
White
J2(L)
J3
TP26
TP24
TP25
TP1(GND)
TP2(R OUT)Ⓑ
TP3(L OUT)Ⓐ
CN2
CN1
Use the CPC-7 jig (J-6082-382-A)
CN982
⑧ ⑤ ⑪
GND
BPF MONI
RF SWP
To Audio terminal
White
L
Red
R
VC-234 board

Ⓐ :1.5MHz deviation adjustment.
Ⓑ :1.7MHz deviation adjustment.

Fig. 5-3-18.

1. Deviation Adjustment

1-1. Connections

1) Connect TP24, TP25 and TP26 of the AFM DEV jig to CN982 of the VC-234 board.
   TP24(GND) .... Pin ⑧ of CN982
   TP25(REC RF) .... Pin ⑤ of CN982
   TP26(RF SWP) .... Pin ⑪ of CN982
2) Connect the audio output terminal (J1 and J2) of the AFM DEV jig to AUDIO terminal of the unit.
3) Connect TP28 (DC), TP27 (GND) of the AFM DEV jig to the DC power supply (+7Vdc to +9Vdc).

1-2. Preparations only for the PLAYER model

Note: PLAYER model:
CCD-TR918E/TRV87E: AEP, UK, EE, NE, RU

1) Select page: 0, address: 01, and set data: 01.
2) Only for the PLAYER model, select page: D, address: 14, after memorizing the data, set the bit value of bit1 to "1". (Refer to "4-3, 3. Bit value discrimination" of "5-4. Service Mode").
3) Select page: D, address: 15, and memorize the data.
4) Only for the PLAYER model, select page: D, address: 15, and set the bit value of bit7 to "0".
5) Insert a tape, and set to recording mode. (Use the wireless remote commander of 8mm VCR, or connect Pin ㊈3 of IC803 of VC-234 board and GND with 4.7kΩ resistor for a second.)
   4.7kΩ resistor: 1-249-425-11

1-3. 1.5 MHz Deviation Adjustment (VC-234 board)

Sets the spectrum of the L-ch ((L+R)/2 signal) level modulated during recording. If deviated, the crosstalk signal of the audio signal will occur and the audio level will drop during both playback and recording.

Mode	VTR recording
Signal	Input the AFM DEV jig output signal to the left and right audio input terminal
Measurement Point	CH1: AFM DEV jig TP31 CH2: AFM DEV jig TP3
Measuring Instrument	Oscilloscope ADD mode CH2 INV mode
Adjustment Page	F
Adjustment Address	7B
Specified Value	The level difference between CH1 signal and CH2 signal should be minimum.

Switch setting:
Set the AFM DEV jig switches to the following positions.
S1 .... BIL Position
S2 .... PAL Position
S3 .... SIN Position

Adjusting method:

1) Set to recording mode. (Only for the PLAYER model, refer to "Preparations only for the PLAYER model".)
2) Match the vertical ranges of CH1 and CH2 of the oscilloscope to each other.
3) Set the oscilloscope to the ADD mode and CH2 to the INV (invert) mode.
4) Select page: 0, address: 01, and set data: 01.
5) Select page: F, address: 7B, change the data and minimize the audio signal level difference (A).
6) Press the PAUSE button of the adjustment remote commander.
7) Select page: 0, address: 01, and set data: 00.
8) Perform "1.7 MHz Deviation Adjustment" and "Processing after completed adjustment only for the PLAYER model".

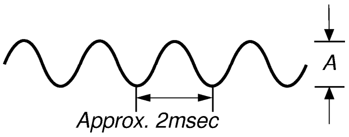


Fig. 5-3-19.

1-4. 1.7 MHz Deviation Adjustment (VC-234 board)

Sets the spectrum of the R-ch ((L-R)/2 signal) level modulated during recording. If deviated, the crosstalk signal of the audio signal will occur and the audio level will drop during both playback and recording.

Mode	VTR recording
Signal	Input the AFM DEV jig output signal to the left and right audio input terminal
Measurement Point	CH1: AFM DEV jig TP32 CH2: AFM DEV jig TP2
Measuring Instrument	Oscilloscope ADD mode CH2 normal mode
Adjustment Page	F
Adjustment Address	7C
Specified Value	The level difference between CH1 signal and CH2 signal should be minimum.

Switch setting:

Set the AFM DEV jig switches to the following positions.

S1 .... BIL Position
S2 .... PAL Position
S3 .... INV Position

Adjusting method:

1) Set to recording mode. (Only for the PLAYER model, refer to “Preparations only for the PLAYER model”.)
2) Match the vertical ranges of CH1 and CH2 of the oscilloscope to each other.
3) Set the oscilloscope to the ADD mode and CH2 to the normal mode.
4) Select page: 0, address: 01, and set data: 01.
5) Select page: F, address: 7C, change the data and minimize the audio signal level difference (A).
6) Press the PAUSE button of the adjustment remote commander.
7) Select page: 0, address: 01, and set data: 00.
8) Perform “Processing after completed adjustment only for the PLAYER model”.

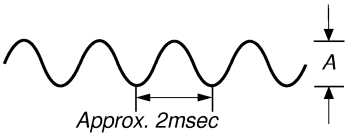


Fig. 5-3-20.

1-5. Processing after completed adjustment only for the PLAYER model

1) Select page: 0, address: 01, and set data: 01.
2) Only for the PLAYER model, select page: D, address: 14, and set the data memorized at step 2) of “Preparations only for the PLAYER model”.
3) Press the PAUSE button.
4) Only for the PLAYER model, select page: D, address: 15, and set the data memorized at step 3) of “Preparations only for the PLAYER model”.
5) Press the PAUSE button.
6) Select page: 0, address: 01, and set data: 00.

2. BPF f0 Adjustment (VC-234 board)

Sets the BPF passing frequency so that the AFM signal can separate from the playback RF signal properly. If deviated. the mono/stereo mode will be differentiated incorrectly, and noises and distortions will increase during high volume playback.

Mode	Playback
Signal	Alignment tape: For BPF adjustment (WR5-11CS)
Measurement Point	Audio output terminal left or right
Measuring Instrument	distortion meter
Adjustment Page	F
Adjustment Address	7D
Specified Value	The Main and Sub channel distortion rate should be almost the same (within ± 1%) and minimum.

Adjusting method :

1) Select page: 0, address: 01, and set data: 01.
2) Set the Hi-Fi sound switch (menu display) to “2”.
3) Select page: F, address: 7D, change the data and minimize the distortion rate.
4) Press the PAUSE button of the adjustment remote commander.
5) Set the Hi-Fi sound switch (menu display) to “1”.
6) Select page: F, address: 7D, change the data and minimize the distortion rate.
7) Press the PAUSE button of the adjustment remote commander.
8) Repeat steps 2) to 7) and set the data of address: 7D so that the distortions rates when the Hi-Fi sound switch is set to “2” and set to “1” respectively are almost the same and minimum.
9) Press the PAUSE button of the adjustment remote commander.
10) Select page: 0, address: 01, and set data: 00.
11) Set the Hi-Fi sound switch to “STEREO”.

3-7. MONAURAL AUDIO SYSTEM ADJUSTMENT (CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)

[Connecting the measuring instruments for the audio]

Connect the audio system measuring instruments besides the video system measuring instruments as shown Fig. 5-3-21.

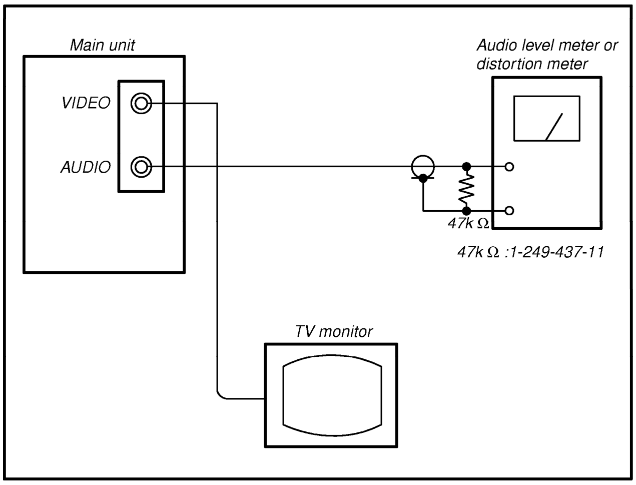


Fig. 5-3-21.

1. 1.5 MHz Deviation Adjustment (VC-234 board)

Adjust to the optimum audio FM signal deviation.
If the adjustment is not correct, its playback level will differ from that of other units.

Mode	Playback
Signal	Alignment tape: For checking the operation (WR5-5CSP)
Measurement Point	Audio output terminal
Measuring Instrument	Audio level meter
Adjustment Page	F
Adjustment Address	7B
Specified Value	–7.5 ± 0.5dBs

Adjusting method :

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 7B, change the data and set the 400Hz signal level to the specified value.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

2. BPF f_0 Adjustment (VC-234 board)

Adjust to the optimum audio BPF characteristics of the IC.
If the adjustment is not correct, the distortion rate and S/N ratio will worsen.

Mode	Playback
Signal	Alignment tape: For BPF adjustment (WR5-11CS)
Measurement Point	Audio output terminal
Measuring Instrument	Distortion meter
Adjustment Page	F
Adjustment Address	7D
Specified Value	The distortion rate should be and minimum.

Adjusting method :

1) Select page: 0, address: 01, and set data: 01.
2) Select page: F, address: 7D, change the data and minimize the distortion rate.
3) Press the PAUSE button of the adjustment remote commander.
4) Select page: 0, address: 01, and set data: 00.

5-4. SERVICE MODE

4-1. ADJUSTMENT REMOTE COMMANDER

The adjustment remote commander is used for changing the calculation coefficient in signal processing, EVR data, etc. The adjustment remote commander performs bi-directional communication with the unit using the remote commander signal line (LANC). The resultant data of this bi-directional communication is written in the non-volatile memory.

1. Using the Adjustment Remote Commander

1) Connect the adjustment remote commander to the LANC terminal.
2) Set the HOLD switch of the adjustment remote commander to “HOLD” (SERVICE position). If it has been properly connected, the LCD on the adjustment remote commander will display as shown in Fig. 5-4-1.

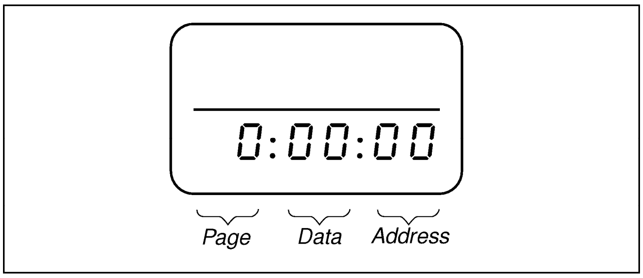


Fig. 5-4-1.

3) Operate the adjustment remote commander as follows.
   - Changing the page
     The page increases when the EDIT SEARCH+ button is pressed, and decreases when the EDIT SEARCH– button is pressed. There are altogether 16 pages, from 0 to F.

Hexadecimal notation	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
LCD Display	0	1	2	3	4	5	6	7	8	9	A	b	c	d	E	F
Decimal notation conversion value	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

   - Changing the address
     The address increases when the FF (▶▶) button is pressed, and decreases when the REW (◀◀) button is pressed. There are altogether 256 addresses, from 00 to FF.
   - Changing the data (Data setting)
     The data increases when the PLAY (▶) button is pressed, and decreases when the STOP (■) button is pressed. There are altogether 256 data, from 00 to FF.
   - Writing the adjustment data
     The PAUSE button must be pressed to write the adjustment data (D, E, F, 7 page) in the nonvolatile memory. (The new adjusting data will not be recorded in the nonvolatile memory if this step is not performed.)
4) After completing all adjustments, turn off the main power supply (8.4 V) once.

2. Precautions Upon Using the Adjustment Remote Commander

Mishandling of the adjustment remote commander may erase the correct adjustment data at times. To prevent this, it is recommended that all adjustment data be noted down before beginning adjustments and new adjustment data after each adjustment.

4-2. DATA PROCESS

The calculation of the DDS display and the adjustment remote commander display data (hexadecimal notation) are required for obtaining the adjustment data of some adjustment items. In this case, after converting the hexadecimal notation to decimal notation, calculate and convert the result to hexadecimal notation, and use it as the adjustment data. Indicates the hexadecimal-decimal conversion table.

Hexadecimal-decimal Conversion Table

Lower digit of hexadecimal / Upper digit of hexadecimal	0	1	2	3	4	5	6	7	8	9	A (A)	B (b)	C (c)	② D (d)	E (E)	F (F)
0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
3	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63
4	64	65	66	67	68	69	70	71	72	73	74	77	76	77	78	79
5	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95
6	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111
7	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127
8	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143
9	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159
A (A)	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175
① B (b)	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191
C (c)	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207
D (d)	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223
E (E)	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239
F (F)	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255

Note: The characters shown in the parenthesis ( ) shown the display on the adjustment remote commander.

(Example) If the DDS display or the adjustment remote commander shows BD (bd);
Because the upper digit of the adjustment number is B (b), and the lower digit is D (d), the meeting point "189" of ① and ② in the above table is the corresponding decimal number.

Table. 5-4-1.

4-3. SERVICE MODE

Note: After the completion of the all adjustments, cancel the service mode by either of the following ways.

1) Unplug the main power supply and remove the lithium battery. (In this case, date and time and menu setting have been set by users are canceled. Perform resetting.)
2) After data on page: D and F is restored, return data of the address: 01 on page: 0 to 00. And when data on page: 2 is changed, return the data to the original condition.

1. Test Mode Setting

Set/release each test mode. Set page: 0, address: 01, data: 01 before setting the data of page D and F.

Page F	Address 22

Data	Function
80	Normal
81	Test mode Various emergency prohibitions and releases Drum emergency, capstan emergency, loading motor emergency, reel emergency, tape top and end, DEW detection

Page D	Address 10

Data	Function
00	Normal
01	Camera power ON
02	VTR power ON
03	Camera + VTR power ON

* For page D and F, the data set will be recorded in the nonvolatile memory by pressing the PAUSE button on the adjustment remote commander. Take note that, in this case, the test mode will not be released even if the main power has been turned off.

* Be sure to return the data of page: F, address: 22 to 80, and the data of page : D, address: 10 to 00 after completing adjustments/ repairs and press the PAUSE button of the adjustment remote commander. And set page: 0, address: 01, data: 00.

2. Emergency Memory Address

Page F	Address 10 to 1B

Address	Contents
10	1st EMG code
12	Upper: MSW code when the mechanism starts shifting the 1st time Lower: MSW code when the 1st emergency occurs
13	Lower: Target MSW code of the 1st emergency occurs
14	2nd EMG code
16	Upper: MSW code when the mechanism starts shifting the 2nd time Lower: MSW code when the 2nd emergency occurs
17	Lower: Target MSW code of the 2nd emergency occurs
18	Last EMG code
1A	Upper: MSW code when the mechanism starts shifting the last time Lower: MSW code when the last emergency occurs
1B	Lower: Target MSW code of the last emergency occurs

When there are no emergency, data 00 will be written in the above addresses (10 to 1B). When the first emergency occurs, the data corresponding to the emergency will be written in the address (10 to 13) for this first emergency. In the same way, when the second emergency occurs, the data corresponding to the emergency will be written in the address (14 to 17) for this second emergency.
The data corresponding to the emergency occurring the last will be written in the address (18 to 1B) for this last emergency.
Therefore the data of addresses 18 to 1B are renewed each time an emergency occurs.

Note 1: Be sure to rewrite the data of addresses 10 to 1B to 00 after repairs/adjustments.
Note 2: When rewriting the data, be sure to press the PAUSE button of the remote commander after setting the data.

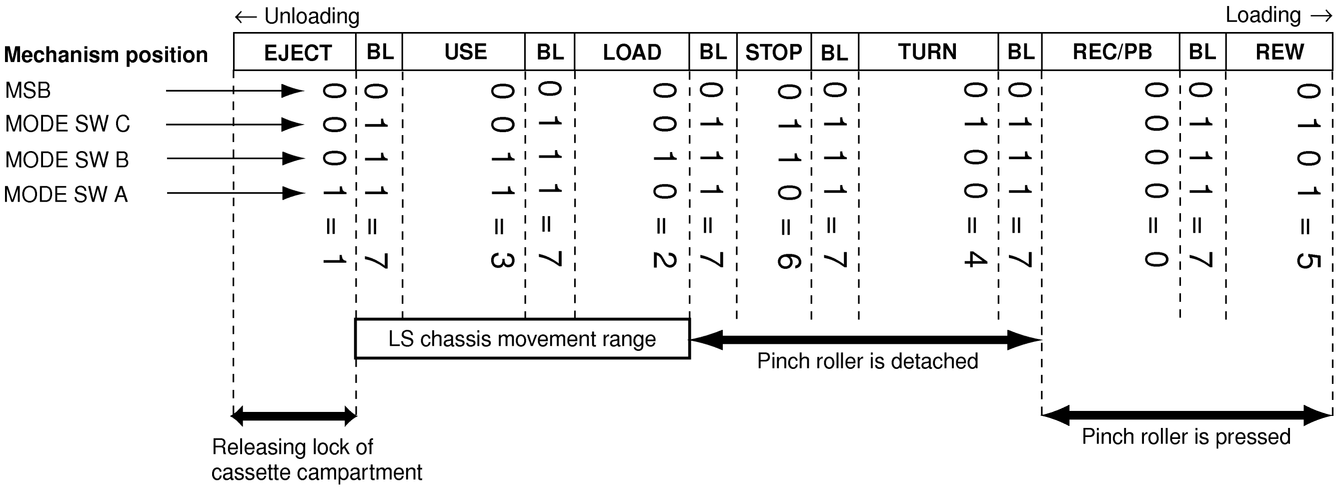
2-1. EMG code (Emergency code)

The codes shown in the following table which correspond to errors that occur are recorded in addresses 10, 14, and 18.

Code	Type of Emergency
00	No error
10	Loading motor time-out during load
11	Loading motor time-out during unload
20	T reel emergency (reel slack) during unloading
21	S reel emergency (reel slack) during unloading
22	T reel emergency
23	S reel emergency
30	FG emergency at the start up of the capstan
31	FG emergency during the normal rotation of the capstan
40	FG emergency at the start up of the drum
41	PG emergency at the start up of the drum
42	FG emergency during the normal rotation of the drum
43	PG emergency during the normal rotation of the drum
44	Phase emergency during the normal rotation of the drum

2-2. MSW codes

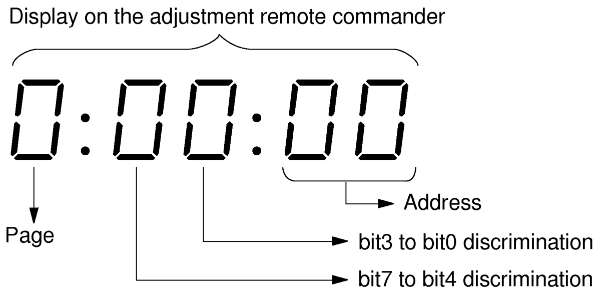
- The lower parts of the data of addresses 12, 16 and 1A represent the MSW codes (mode switch, mechanism position) when errors occurs.
- The upper parts of the data of addresses 12, 16 and 1A represent, when the mechanism position is to be moved, the MSW codes at the start of movement (when moving the loading motor).
- The lower parts of the data of addresses 13, 17 and 1B represent the MSW codes of the desired movement when the mechanism position is to be moved.


← Unloading
Loading →
Mechanism position
EJECT
BL
USE
BL
LOAD
BL
STOP
BL
TURN
BL
REC/PB
BL
REW
MSB
MODE SW C
MODE SW B
MODE SW A
0001 = 1
0111 = 7
0011 = 3
0111 = 7
0010 = 2
0111 = 7
0110 = 6
0111 = 7
0100 = 4
0111 = 7
0000 = 0
0111 = 7
0101 = 5
LS chassis movement range
Pinch roller is detached
Releasing lock of
cassette campartment
Pinch roller is pressed

Mechanism Position	MSW Code	Contents
EJECT	1	Position at which the cassette compartment lock is released. The mechanism will not move any further in the unloading direction.
BL	7	BLANC code. Between two codes. The mechanism will not be stopped by this code while it is operating.
USE	3	EJECT completion position. When the cassette is ejected, the mechanism will stop at this position.
LOAD	2	Code during loading/unloading. Code that is used while the LS chassis is moving.
STOP	6	Normal stop position. The pinch roller separates, the tension regulator returns, and the brakes of both reels turn on.
TURN	4	Position at which is used when the pendulum gear swings from S to T or from T to S.
RECP/PB	0	PB, REC, CUE, REV, PAUSE, FF positions. The pinch roller is pressed and tension regulator is on.
REW	5	REW position. REW are carried at this position. The mechanism will not move any further in the loading direction.

3. Bit Value Discrimination

Bit values must be discriminated using the display data of the adjustment remote commander for the following items. Us the table below to discriminate if the bit value is “1” or “0”.


Display on the adjustment remote commander
0:00:00
Address
Page
bit3 to bit0 discrimination
bit7 to bit4 discrimination

(Example) If the remote commander display is “8E”, bit value from bit 7 to bit 4 can be discriminated from the column Ⓐ, and those from bit 3 to bit 0 from column Ⓑ.

	Display on the adjustment remote commander	Bit values			
		bit3 or bit7	bit2 or bit6	bit1 or bit5	bit0 or bit4
	0	0	0	0	0
	1	0	0	0	1
	2	0	0	1	0
	3	0	0	1	1
	4	0	1	0	0
	5	0	1	0	1
	6	0	1	1	0
	7	0	1	1	1
Ⓐ	8	1	0	0	0
	9	1	0	0	1
	A (A)	1	0	1	0
	B (b)	1	0	1	1
	C (C)	1	1	0	0
	D (d)	1	1	0	1
Ⓑ	E (E)	1	1	1	0
	F (F)	1	1	1	1

4. Input/output selection check

Page 2	Address 49

Bit	Function	When bit value = 1	When bit value = 0
0			
1			
2			
3			
4	MIC jack (Note 1)	MIC jack is used	
5	AUDIO terminal (Note 1)	Monaural	Stereo
6	VIDEO terminal	VIDEO terminal is used	
7	S VIDEO terminal (Note 2)		S VIDEO terminal is used

Note 1: STEREO model only.
Note 2: Hi8 model only.

Using method:

1) Select page: 2, address: 49.
2) By discriminating the bit value of display data, the state of the input/output selection can be discriminated.

5. LED, LCD (display window) check

Page 2	Address 05	Bit5

Using method:

1) Select page: 2, address: 05, and set the bit value of Bit5 to “1”.
2) Check that all LED are lit and all segments of LCD (display window) are lit.
3) Select page: 2, address: 05, and set the bit value of Bit5 to “0”.

6. Record of Use check

Page 2	Address A2 to AA

Bit	Function		Remarks
A2	Drum rotation counted time (BCD code)	Hour (H)	1000th place digit and 100th place digit of counted time (decimal digit)
A3		Hour (L)	10th place digit and 1st place digit of counted time (decimal digit)
A4		Minute	
A5	User initial power on date (BCD code)	Year	After setting the clock, set the date of power on next
A6		Month	
A7		Day	
A8	Final condensation occurrence date (BCD code)	Year	
A9		Month	
AA		Day	

Using method:

1) The record of use data is displayed at page: 2, addresses: A2 to AA.

Note: This data will be erased when the coin lithium battery (CF-66/67 board BH001) is removed (reset).

7. Switch check (1)

Page 2	Address 43

Bit	Function	When bit value = 1	When bit value = 0
0	VTR MODE SW (MA-374/375 board S302)	OFF	ON
1	CAM MODE SW (MA-374/375 board S303)	OFF	ON
2	START/STOP SW (SS-8500 block S002)	OFF	ON
3	EJECT SW (SS-8500 block S003)	OFF	ON
4	CC DOWN SW (Mechanism chassis)	OFF (UP)	ON (DOWN)
5	PHOTO FREEEZE SW (FP-49 flexible)(Note)	OFF	ON
6			
7			

Note: CCD-TR918E/TRV87E model only.

Using method:

1) Select page: 2, address: 43.
2) By discriminating the bit value of display data, the state of the switches can be discriminated.

8. Switch check (2)

Page 2	Address 60 to 66

Using method:

1) Select page: 2, address: 60 to 66.
2) By discriminating the display data, the pressed key can be discriminated.

Address	Data							
	00 to 0B	0C to 23	24 to 3E	3F to 5C	5D to 80	81 to A9	AA to D6	D7 to FF
60 (KEY AD0) (IC803 (93))	LASER LINK (FK-8500 block) (S008) Note2	STOP (FK-8500 block) (S001)	FF (FK-8500 block) (S003)	REC (FK-8500 block) (S005, 007) Note6	EDIT SEARCH(+) (FK-8500 block) (S009)	EDIT SEARCH(–) (FK-8500 block) (S010)		No key input
61 (KEY AD1) (IC803 (94))	PHOTO REC (FP-49 flexible) Note2	PAUSE (FK-8500 block) (S002)	REW (FK-8500 block) (S004)	PLAY (FK-8500 block) (S006)				No key input
62 (KEY AD2) (IC803 (95))	DIGITAL EFFECT (CF-66/67 board) (S001) Note2	PICTURE EFFECT (CF-66/67 board) (S016/004)	MENU (CF-66/67 board) (S006)	EXECUTE (CF-66/67 board) (S008/009)	TIME (CF-66/67 board) (S011/012)			No key input
64 (KEY AD4) (IC803 (97))			EXPOSURE (CF-66/67 board) (S007)	BACK LIGHT (CF-66/67 board) (S009/010)	FADER (CF-66/67 board) (S012/013)	FOCUS INFINITY (MR-8500 block) (S001)	FOCUS AUTO (MR-8500 block) (S001)	FOCUS MANUAL (MR-8500 block) (S001)
65 (KEY AD5) (IC803 (98))	DATE (CF-66/67 board) (S002)	COUNTER RESET (CF-66/67 board) (S005)	END SEARCH (CF-67 board) (S008) Note3	TITLE (CF-66/67 board) (S010/011)	DISPLAY (CF-67 board) (S014) Note3	SUPER NIGHT SHOT (FP-62 flexible) Note2	PANEL CLOSE	PANEL OPEN
66 (KEY AD6) (IC803 (99))	PROGRAM AE (CF-66/67 board) (S003 (Note4)) (S014 (Note5))	BRIGHT(+) (PD-117 board) (S5701)	BRIGHT(–) (PD-117 board) (S5702)	VOLUME(+) (PD-117 board) (S5703)	VOLUME(–) (PD-117 board) (S5704)	PANEL REVERSE (FP-152 flexible)		PANEL NORMAL (FP-152 flexible)

Note1: TR model / TRV model
TR model: CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E
TRV model: CCD-TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
Note2: CCD-TRV918E/TRV87E model only
Note3: TRV model only
Note4: Except CCD-TR317E/TR417E/TR427E/TR617E/TR717E model
Note5: CCD-TR317E/TR417E/TR427E/TR617E/TR717E model only
Note6: CCD-TRV87E: E, HK, AUS, CN, JE model only

9. Headphone jack check (TRV model only)

Page 2	Address 45

Bit	Function	When bit value = 1	When bit value = 0
1	Headphone jack	Headphone jack is used	

Using method:

1) Select page: 2, address: 45.
2) By discriminating the bit value of display data, the state of the headphone jack can be discriminated.

SECTION 6
REPAIR PARTS LIST

6-1. EXPLODED VIEWS

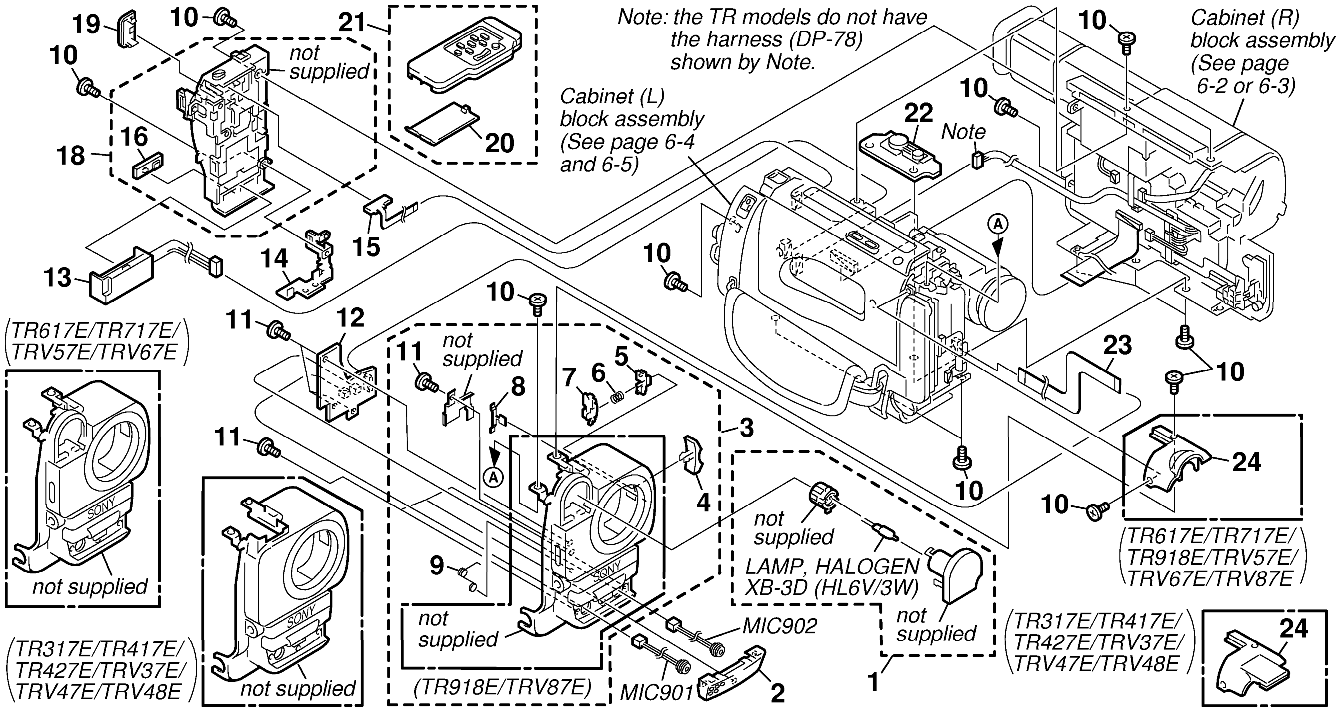
NOTE:

- -XX, -X mean standardized parts, so they may have some differences from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Abbreviation

AUS : Australian model
HK : Hong Kong model
CN : Chinese model
EE : East European model
NE : North European model
RU : Russian model
JE : Tourist model

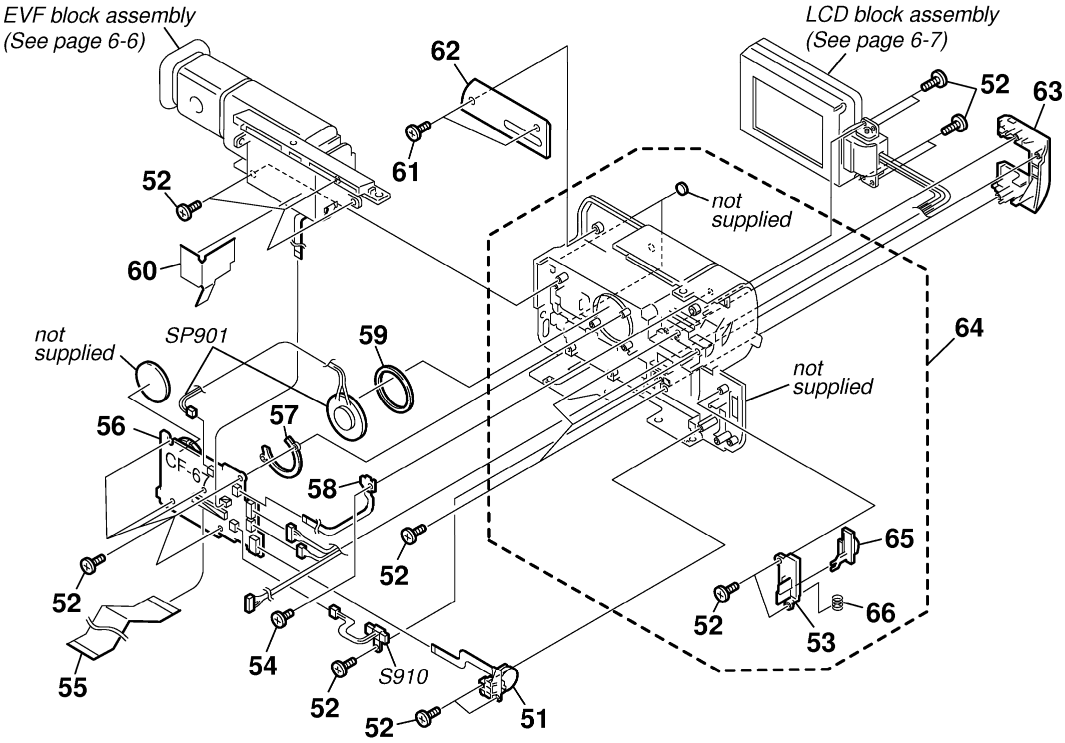
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

6-1-1. FRONT PANEL BLOCK ASSEMBLY AND BATTERY PANEL BLOCK ASSEMBLY


19
10
10
21
not supplied
20
16
18
13
14
15
Note: the TR models do not have the harness (DP-78) shown by Note.
Cabinet (L) block assembly (See page 6-4 and 6-5)
22
Note
10
Cabinet (R) block assembly (See page 6-2 or 6-3)
A
10
10
11
12
(TR617E/TR717E/TRV57E/TRV67E)
not supplied
11
not supplied
5
6
7
8
3
A
4
9
not supplied
(TR918E/TRV87E)
MIC901
MIC902
2
not supplied
LAMP, HALOGEN XB-3D (HL6V/3W)
not supplied
1
23
10
10
24
10
(TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)
(TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
24
(TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
not supplied
SONY

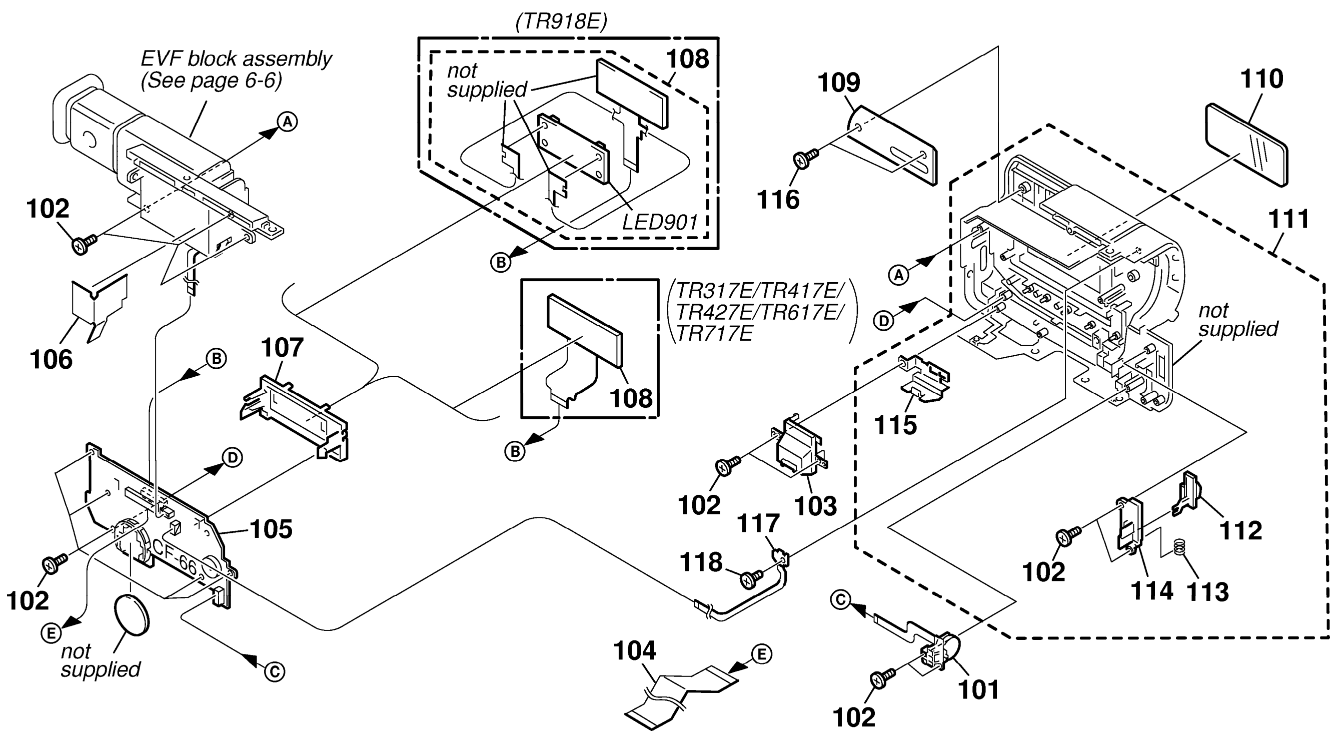
Ref. No.	Part No.	Description	Remarks
1	1-517-857-11	LIGHT, VIDEO (TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)	
2	X-3949-326-1	GRILLE (D) ASSY, MICROPHONE	
3	X-3950-120-1	PANEL(97) ASSY, FRONT (TRV87E:E,HK,AUS,CN,JE)	
3	X-3950-121-1	PANEL(97) ASSY, FRONT (TR617E/TR717E/TRV57E/TRV67E)	
3	X-3950-122-1	PANEL(97) ASSY, FRONT (TR317E/TR417E:AEP,UK/TRV37)	
3	X-3950-123-1	PANEL(97) ASSY, FRONT (TR417E:EE,NE,RU/TR427E/TRV47E/TRV48E)	
3	X-3950-124-1	PANEL(97) ASSY, FRONT (TR918E/TRV87E:AEP,EE,NE,RU,UK)	
4	3-987-631-01	KNOB, P	
5	3-053-597-01	BUTTON (D), LOCK	
6	3-973-619-01	SPRING, COMPRESSION	
7	3-053-596-01	HOLDER (D), P KNOB	
8	3-987-642-01	SPRING, CLICK	
9	3-987-882-01	SPRING, TORSION	
10	3-968-729-91	SCREW (M2), LOCK ACE, P2	
11	3-948-339-61	TAPPING	
12	A-7074-114-A	MA-375 (N-VLO) BOARD, COMPLETE (TRV37E)	
12	A-7074-121-A	MA-375 (N-VHMMBO) BOARD, COMPLETE (TRV57E/TRV67E)	
12	A-7074-127-A	MA-375 (N-VHXRIBO) BOARD, COMPLETE (TRV87E)	
12	A-7074-135-A	MA-374 (HXRIBO) BOARD, COMPLETE (TR918E)	
12	A-7074-153-A	MA-374 (LO) BOARD, COMPLETE (TR317E/TR417E)	
12	A-7074-157-A	MA-374 (O) BOARD, COMPLETE (TR427E)	
12	A-7074-167-A	MA-374 (HMMBO) BOARD, COMPLETE (TR617E/TR717E)	
12	A-7074-191-A	MA-375 (VO) BOARD, COMPLETE (TRV47E/TRV48E)	
13	1-694-384-11	TERMINAL BOARD, BATTERY	
14	3-053-723-01	SHEET METAL (LOWER), STRAP	
15	1-672-663-21	FP-49 FLEXIBLE BOARD (TR918E/TRV87E)	
16	3-987-656-01	LID, JACK	
18	X-3950-109-1	PANEL (97) ASSY, BATTERY (TR918E/TRV87E)	
18	X-3950-110-1	PANEL (97) ASSY, BATTERY (TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
19	3-975-752-01	LID (BT), CPC	
20	3-958-131-01	LID, BATTERY CASE (For RMT-708) (TR427E/TR617E/TR717E/TR918E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
21	1-467-574-21	REMOTE COMMANDER (RMT-708) (TR427E/TR617E/TR717E/TR918E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
22	3-987-717-01	SCREW	
23	1-672-670-11	FP-43 FLEXIBLE BOARD	
24	3-053-603-01	CABINET (L), SHOE (TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)	
24	3-058-251-01	CABINET (N) (97), SHOE (TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)	
MIC901	1-542-312-11	MICROPHONE (R)	
MIC902	1-542-312-11	MICROPHONE (L) (TR918E/TRV87E)	

6-1-2. CABINET (R) BLOCK ASSEMBLY (TRV MODEL) (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)


EVF block assembly
(See page 6-6)
62
LCD block assembly
(See page 6-7)
52
63
61
52
not supplied
60
not supplied
SP901
59
64
not supplied
56
CF-67
57
58
65
52
52
66
52
53
55
54
S910
52
52
51

Ref. No.	Part No.	Description	Remarks
51	1-475-621-11	SWITCH BLOCK, CONTROL (MR-8500)	
52	3-948-339-61	TAPPING	
53	3-053-690-01	RETAINER (93), MF	
54	3-713-791-01	SCREW (M1.7X4), TAPPING, P2 (TRV87E)	
55	1-791-948-11	CABLE, FLEXIBLE FLAT (FFC-001)	
56	A-7074-120-A	CF-67 (N-VHMMBO) BOARD, COMPLETE	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
56	A-7074-126-A	CF-67 (N-VHXRIBO) BOARD, COMPLETE	(TRV87E)
* 57	3-053-783-01	RETAINER (93), SPEAKER	
58	1-672-668-21	FP-62 FLEXIBLE BOARD (TRV87E)	
59	3-060-141-01	SPACER (97), SP	
* 60	3-059-290-01	GUIDE (97), HARNESS	
61	3-948-339-81	TAPPING	
62	3-053-684-01	GUIDE (B) (93), TILT	
63	3-053-706-31	COVER (R) (93), HINGE	(TRV87E:AEP1,EE,NE,RU,E,HK,AUS,CN,JE)
63	3-053-706-41	COVER (R) (93), HINGE	(TRV48E:AEP1,EE,NE,RU/TRV57E:AEP1,EE,NE,RU,E,HK,AUS,CN,JE/ TRV67E:AEP1,EE,NE,RU,E,HK,AUS,CN,JE)
63	3-053-706-51	COVER (R) (93), HINGE (TRV47E)	
63	3-053-706-61	COVER (R) (93), HINGE (TRV37E:AEP1)	
63	3-053-706-71	COVER (R) (93), HINGE	(TRV37E:AEP2,EE,NE,RU,UK)
63	3-053-706-81	COVER (R) (93), HINGE (TRV87E:AEP2,UK)	
63	3-053-706-91	COVER (R) (93), HINGE	(TRV48E:AEP2,UK/TRV57E:AEP2,UK/TRV67E:AEP2,UK)
64	X-3950-096-1	CABINET (R) (98) ASSY (TRV87E)	
64	X-3950-097-1	CABINET (R) (98) ASSY (TRV57E/TRV67E)	
64	X-3950-098-1	CABINET (R) (98) ASSY	(TRV37E/TRV47E/TRV48E)
65	3-053-689-01	KNOB(93), MF	
66	3-568-315-01	SPRING, COMPRESSION	
S910	1-771-848-11	SWITCH, PUSH	
SP901	1-504-753-41	SPEAKER (2.8CM)	

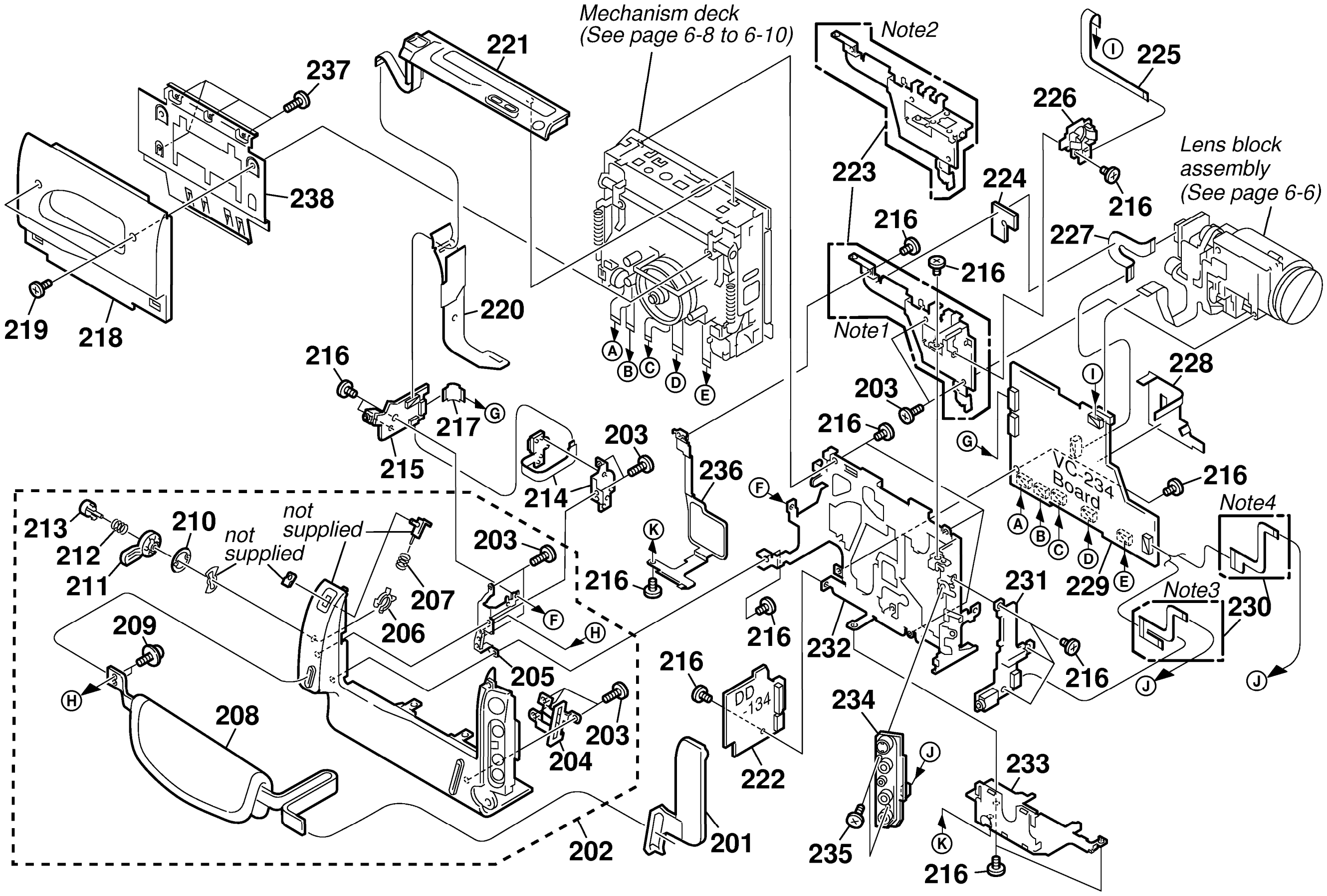
6-1-3. CABINET (R) BLOCK ASSEMBLY (TR MODEL) (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)


(TR918E)
EVF block assembly
(See page 6-6)
A
108
not supplied
LED901
B
109
110
116
111
102
A
(TR317E/TR417E/TR427E/TR617E/TR717E)
D
not supplied
106
107
B
108
B
115
D
105
CF-66
102
103
117
118
112
102
114
113
102
E
not supplied
C
C
104
E
101
102

Ref. No.	Part No.	Description	Remarks
101	1-475-621-11	SWITCH BLOCK, CONTROL (MR-8500)	
102	3-948-339-61	TAPPING	
103	3-053-717-11	RETAINER, LITHIUM BATTERY	
104	1-791-948-11	CABLE, FLEXIBLE FLAT (FFC-001)	
105	A-7074-134-A	CF-66 (P-HXRIBO) BOARD, COMPLETE	(TR918E)
105	A-7074-152-A	CF-66 (N-LO) BOARD, COMPLETE (TR317E)	
105	A-7074-164-A	CF-66 (P-LO) BOARD, COMPLETE	(TR417E/TR427E/TR617E/TR717E)
* 106	3-059-290-01	GUIDE (97), HARNESS	
107	3-053-718-01	HOLDER (92), LCD (TR918E)	
107	3-058-238-01	HOLDER (97), LCD	(TR317E/TR417E/TR427E/TR617E/TR717E)
108	1-803-844-81	DISPLAY, PANEL, LIQUID CRYSTAL	(TR317E/TR417E/TR427E/TR617E/TR717E)
108	A-7094-150-A	INDICATION LCD BLOCK ASSY (TR918E)	
109	3-053-684-01	GUIDE (B) (93), TILT	
110	3-058-219-21	WINDOW (97), LCD (TR918E)	
110	3-058-219-31	WINDOW (97), LCD (TR417E)	
110	3-058-219-41	WINDOW (97), LCD (TR427E)	
110	3-058-219-51	WINDOW (97), LCD (TR717E)	
110	3-058-219-61	WINDOW (97), LCD (TR317E)	
110	3-058-219-71	WINDOW (97), LCD (TR617E)	
111	X-3950-087-1	CABINET (R) (97) ASSY	(TR427E:AEP1,EE,NE,RU)
111	X-3950-088-1	CABINET (R) (97) ASSY (TR317E)	
111	X-3950-089-1	CABINET (R) (97) ASSY	(TR918E:AEP1,EE,NE,RU)
111	X-3950-090-1	CABINET (R) (97) ASSY (TR918E:AEP2,UK)	
111	X-3950-091-1	CABINET (R) (97) ASSY	(TR417E:AEP1,EE,NE,RU)
111	X-3950-092-1	CABINET (R) (97) ASSY (TR417E:AEP2,UK)	
111	X-3950-093-1	CABINET (R) (97) ASSY (TR427E:AEP2,UK)	
111	X-3950-094-1	CABINET (R) (97) ASSY	(TR617E:AEP1,EE,NE,RU/TR717E:AEP1)
111	X-3950-095-1	CABINET (R) (97) ASSY	(TR617E:AEP2/TR717E:AEP2,EE,NE,RU,UK)
112	3-056-469-01	KNOB (93), MF	
113	3-568-315-01	SPRING, COMPRESSION	
114	3-053-690-01	RETAINER (93), MF	
115	3-053-713-01	LID (92), LITHIUM BATTERY	
116	3-948-339-81	TAPPING	
117	1-672-668-21	FP-62 FLEXIBLE BOARD (TR918E)	
118	3-713-791-01	SCREW (M1.7X4), TAPPING, P2 (TR918E)	
⚠LED901	1-517-858-11	LIGHT, BACK (TR918E)	

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

6-1-4. CABINET (L) BLOCK ASSEMBLY


Mechanism deck
(See page 6-8 to 6-10)
Note2
221
237
225
226
Lens block
assembly
(See page 6-6)
238
223
224
216
216
227
216
220
Note1
219
218
216
203
228
217
215
203
216
236
216
214
213
210
not
supplied
not
supplied
Note4
212
211
203
VC-234
Board
229
207
216
206
231
Note3
230
209
205
216
216
232
216
208
203
204
DD-134
222
234
233
202
201
235
216
A
B
C
D
E
F
G
H
I
J
K

*Note1: TR617E/TR717E/TR918E/
TRV57E/TRV67E/TRV87E*

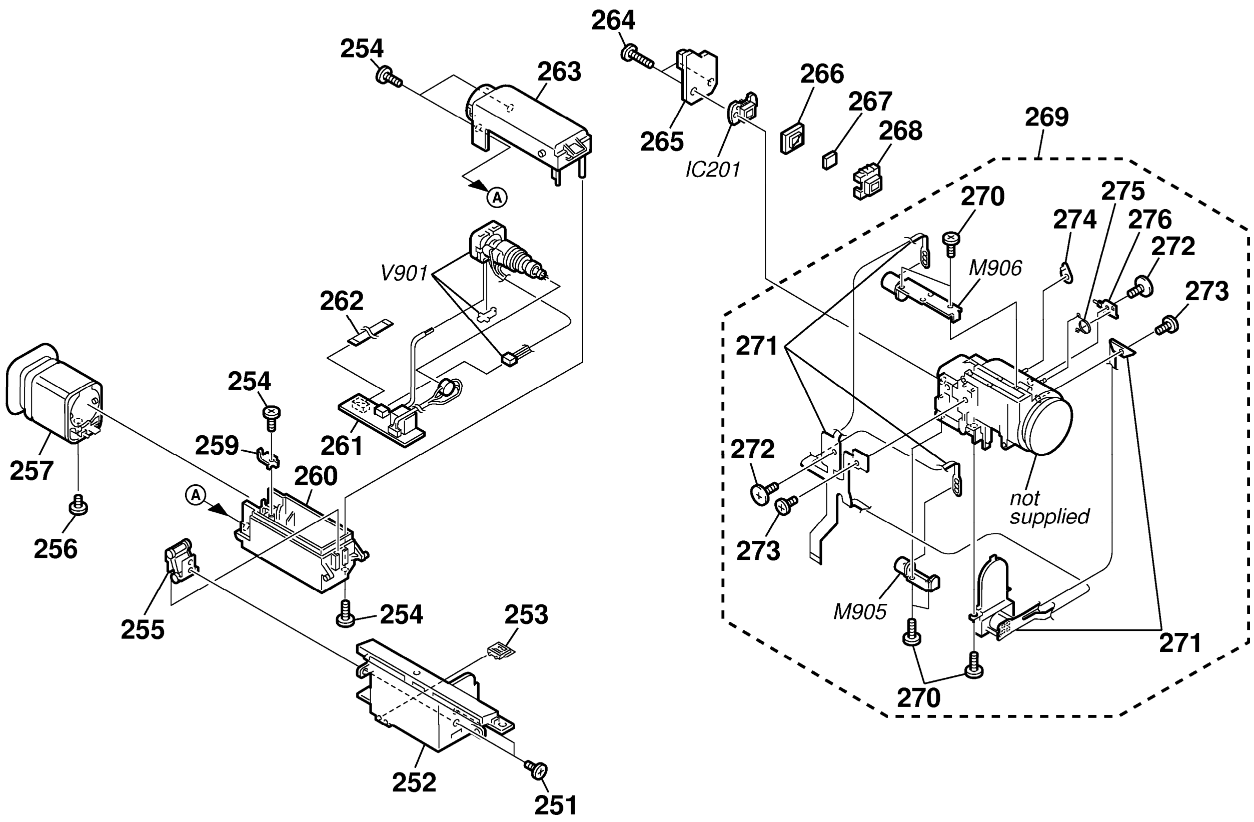
*Note2: TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E*

*Note3: TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/
TRV57E/TRV67E/TRV87E*

Note4: TR317E/TR417E/TR427E

Ref. No.	Part No.	Description	Remarks
* 201	3-975-522-11	COVER, JACK	
202	X-3950-112-1	CABINET (L) ASSY (TRV87E)	
202	X-3950-113-1	CABINET (L) ASSY (TRV67E)	
202	X-3950-114-1	CABINET (L) ASSY	(TRV37E/TRV47E/TRV48E/TRV57E)
202	X-3950-115-1	CABINET (L) ASSY	(TR317E/TR417E/TR427E/TR617E)
202	X-3950-116-1	CABINET (L) ASSY (TR918E)	
202	X-3950-117-1	CABINET (L) ASSY (TR717E)	
203	3-948-339-61	TAPPING	
204	3-975-966-01	SHEET METAL (2), SS	
* 205	3-058-248-01	HOLDER (97), EL	
206	3-949-192-01	HOLDER, STAND-BY KNOB	
207	3-979-642-01	SPRING, COMPRESSION	
208	3-052-815-01	BELT (ES), GRIP	
209	3-679-362-11	SCREW	
210	3-970-854-01	SPRING, STAND-BY	
211	3-969-081-01	KNOB, STAND-BY	
212	3-302-492-00	SPRING, COMPRESSION	
213	3-054-010-01	BUTTON, SS	
214	1-418-758-21	SWITCH BLOCK, CONTROL (SS-9700)	
215	A-7074-149-A	EJ-30 (VHXRIBO) BOARD, COMPLETE	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
215	A-7074-162-A	EJ-29 (CO) BOARD, COMPLETE	(TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)
216	3-713-786-21	SCREW (M2X3)	
217	1-676-298-11	FP-150 FLEXIBLE BOARD	
218	X-3948-329-1	LID ASSY, CASSETTE	(TR317E/TR417E/TR427E/TR617E/TRV37E/TRV47E/TRV48E/TRV57E)
218	X-3948-331-1	LIDASSY, CASSETTE	(TR717E/TR918E/TRV67E/TRV87E)
219	3-968-729-81	SCREW (M2), LOCK ACE, P2	
* 220	3-058-247-01	PROTECTOR (97), LS FLEXIBLE	
221	1-418-760-11	SWITCH BLOCK, CONTROL (FK-8500)	(TRV87E:E,HK,AUS,CN,JE)
221	1-418-760-21	SWITCH BLOCK, CONTROL (FK-8500)	(TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
221	1-418-760-41	SWITCH BLOCK, CONTROL (FK-8500)	(TR918E/TRV87E:AEP,EE,NE,RU,UK)
222	A-7074-113-A	DD-134 (VO) BOARD, COMPLETE	(TRV37E/TRV47E/TRV48E)
222	A-7074-125-A	DD-134 (VHXRIBO) BOARD, COMPLETE	(TRV57E/TRV67E/TRV87E)
222	A-7074-133-A	DD-134 (HXRIBO) BOARD, COMPLETE	(TR918E)
222	A-7074-151-A	DD-134 (LO) BOARD, COMPLETE	(TR317E/TR417E/TR427E)
222	A-7074-166-A	DD-134 (HMMBO) BOARD, COMPLETE	(TR617E/TR717E)
223	3-053-741-01	FRAME (S), LENS	(TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
* 223	3-053-742-01	FRAME (L), LENS	(TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)
* 224	3-058-969-01	CUSHION (97), CD FLEXIBLE	
225	1-672-673-11	FP-46 FLEXIBLE BOARD	(TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)
226	A-7074-130-A	VL-29 (VHXRIBO) BOARD, COMPLETE	(TRV57E/TRV67E/TRV87E)
226	A-7074-169-A	VL-28 (BO) BOARD, COMPLETE	(TR617E/TR717E/TR918E)
227	1-676-296-11	FP-147 FLEXIBLE BOARD	
* 228	3-058-250-01	SHEET (97), IM GUARD	
229	A-7094-704-A	VC-234 (P-LO) BOARD, COMPLETE	(TR317E/TR417E/TR427E)
229	A-7094-705-A	VC-234 (P-HMMBO) BOARD, COMPLETE	(TR717E)
229	A-7094-706-A	VC-234 (P-HXIRBO) BOARD, COMPLETE	(TR918E)
229	A-7094-708-A	VC-234 (P-VLO) BOARD, COMPLETE	(TRV37E/TRV47E/TRV48E)
229	A-7094-709-A	VC-234 (P-VHMMBO) BOARD, COMPLETE	(TRV67E)
229	A-7094-710-A	VC-234 (P-VHXRIBO) BOARD, COMPLETE	(TRV87E)
229	A-7094-807-A	VC-234 (P-MMBO) BOARD, COMPLETE	(TR617E)
229	A-7094-808-A	VC-234 (P-VHMBO) BOARD, COMPLETE	(TRV57E)
230	1-672-671-11	FP-44 FLEXIBLE BOARD	(TR617E/TR717E/TR918E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
230	1-676-297-11	FP-149 FLEXIBLE BOARD	(TR317E/TR417E/TR427E)
231	A-7074-116-A	SE-101 (N-VLO) BOARD, COMPLETE (TRV47E)	
231	A-7074-123-A	SE-101 (N-VHMMBO) BOARD, COMPLETE	(TRV57E:E,HK,AUS,CN,JE/TRV67E:E,HK,AUS,CN,JE)
231	A-7074-129-A	SE-101 (N-VHXRIBO) BOARD, COMPLETE	(TRV87E:E,HK,AUS,CN,JE)
231	A-7074-137-A	SE-100 (HXRIBO) BOARD, COMPLETE	(TR617E/TR717E/TR918E)
231	A-7074-140-A	SE-101 (P-VLO) BOARD, COMPLETE	(TRV37E/TRV48E)
231	A-7074-144-A	SE-101 (P-VHMMBO) BOARD, COMPLETE	(TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK)
231	A-7074-147-A	SE-101 (P-VHXRIBO) BOARD, COMPLETE	(TRV87E:AEP,EE,NE,RU,UK)
232	3-053-743-01	FRAME (A), MD	
233	3-987-675-01	FRAME (B), MD	(TR317E/TRV47E/TRV57E:E,HK,AUS,CN,JE/TRV67E:E,HK,AUS,CN,JE/TRV87E:E,HK,AUS,CN,JE)
233	3-987-675-11	FRAME (B), MD	(TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK/TRV87E:AEP,EE,NE,RU,UK)
234	A-7074-115-A	PJ-100 (N-VLO) BOARD, COMPLETE	(TRV47E/TRV57E:E,HK,AUS,CN,JE)
234	A-7074-122-A	PJ-100 (N-VHMMBO) BOARD, COMPLETE	(TRV67E:E,HK,AUS,CN,JE)
234	A-7074-128-A	PJ-100 (N-VHXRIBO) BOARD, COMPLETE	(TRV87E:E,HK,AUS,CN,JE)
234	A-7074-136-A	PJ-99 (HXRIBO) BOARD, COMPLETE (TR918E)	
234	A-7074-139-A	PJ-100 (P-VLO) BOARD, COMPLETE	(TRV37E/TRV48E/TRV57E:AEP,EE,NE,RU,UK)
234	A-7074-143-A	PJ-100 (P-VHMMBO) BOARD, COMPLETE	(TRV67E:AEP,EE,NE,RU,UK)
234	A-7074-146-A	PJ-100 (P-VHXRIBO) BOARD, COMPLETE	(TRV87E:AEP,EE,NE,RU,UK)
234	A-7074-158-A	PJ-99 (CO) BOARD, COMPLETE	(TR317E/TR417E/TR427E/TR617E)
234	A-7074-168-A	PJ-99 (HMMBO) BOARD, COMPLETE (TR717E)	
235	3-968-729-91	SCREW (M2), LOCK ACE, P2	
236	X-3950-104-1	SHIELD ASSY (97), IM	(TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK/TRV87E:AEP,EE,NE,RU,UK)
237	3-713-791-01	SCREW (M1.7X4), TAPPING, P2	(TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK/TRV87E:AEP,EE,NE,RU,UK)
* 238	3-058-253-01	PLATE (97), CASSETTE SHIELD	(TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK/TRV87E:AEP,EE,NE,RU,UK)

6-1-5. EVF BLOCK ASSEMBLY AND LENS BLOCK ASSEMBLY

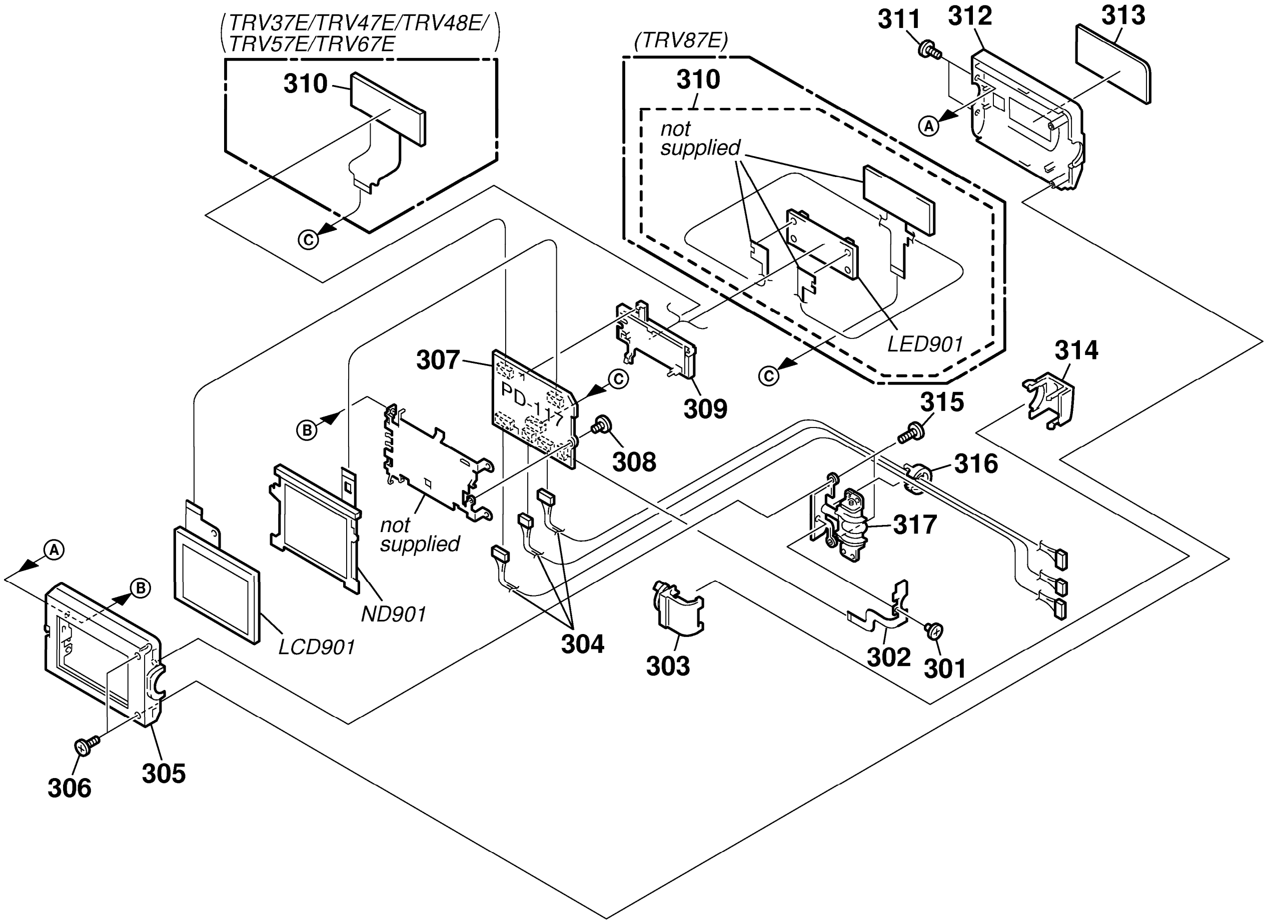


Be sure to read "Precautions upon replacing CCD imager" on page 4-8 when changing the CCD imager.

Ref. No.	Part No.	Description	Remarks
251	3-713-786-21	SCREW (M2X3)	
252	3-058-245-01	BASE (B) (97), VF	
253	3-053-685-01	LOCK (93), TILT	
254	3-948-339-81	TAPPING	
255	X-3949-327-1	ARM(B) ASSY, CRANK	
256	3-975-898-01	SCREW (T), F LOCK	
257	X-3949-329-1	FINDER (S) ASSY	
259	3-053-681-01	TALLY, EVF	
260	3-053-679-02	CABINET (LOWER B) (93), EVF	(TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
260	3-053-679-21	CABINET (LOWER B) (93), EVF	(TR918E/TRV87E)
261	A-7073-855-A	VF-129 (P) BOARD, COMPLETE	
262	1-792-454-11	CABLE, FLEXIBLE FLAT (FFC-289)	
263	X-3949-328-2	CABINET (UPPER B) (93) ASSY	(TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
263	X-3950-119-1	CABINET (UPPER B) (93) ASSY	(TR918E/TRV87E)
264	3-318-203-11	SCREW (B1.7X6), TAPPING	
265	A-7074-148-A	CD-240 (VHXRIBO) BOARD, COMPLETE	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
265	A-7074-161-A	CD-239 (CO) BOARD, COMPLETE	(TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)
266	3-953-817-01	RUBBER (F), SEAL	(TR617E/TR717E/TRV57E/TRV67E)
266	3-968-054-11	RUBBER (FM), SHIELD	(TR317E/TR417E/TR427E/TR918E/TRV37E/TRV47E/TRV48E/TRV87E)
267	1-758-084-21	FILTER BLOCK, OPTICAL	(TR317E/TR417E/TR427E/TR918E/TRV37E/TRV47E/TRV48E/TRV87E)
267	1-758-133-21	FILTER BLOCK, OPTICAL	(TR617E/TR717E/TRV57E/TRV67E)
268	3-978-981-11	ADAPTOR (FK), CCD FITTING	
269	8-848-729-01	DEVICE, LENS LSV-630A	
270	3-713-791-41	SCREW, TAPPING (M1.7X5), P2	
271	X-3949-355-2	IRIS FLEXIBLE ASSY 630	
272	3-056-022-01	TAPPING (B1.7X3.5), HEAD	
273	3-713-791-51	SCREW, TAPPING (M1.7X3.5), P2	
274	3-053-799-01	GEAR, IR	
275	3-053-800-01	SPRING, RETAIN	
276	3-053-827-01	LEVER, IR	
IC201	A-7031-043-A	CCD BLOCK ASSY	(TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
IC201	A-7031-046-A	CCD BLOCK ASSY	(TR918E)
IC201	A-7031-049-A	CCD BLOCK ASSY	(TR617E/TR717E/TRV57E/TRV67E)
IC201	A-7031-060-A	CCD BLOCK ASSY	(TRV87E)
M905	1-763-262-11	MOTOR, STEPPING F630	
M906	1-763-046-21	MOTOR, STEPPING Z600	
⚠V901	1-452-673-61	CRT ASSY (M01KXX90WB)	

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

6-1-6. LCD BLOCK ASSEMBLY (TRV MODEL)
(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)


(TRV37E/TRV47E/TRV48E/
TRV57E/TRV67E)
(TRV87E)
310
310
not
supplied
LED901
311
312
313
A
C
C
C
B
307
PD-117
309
308
314
315
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supplied
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LCD901
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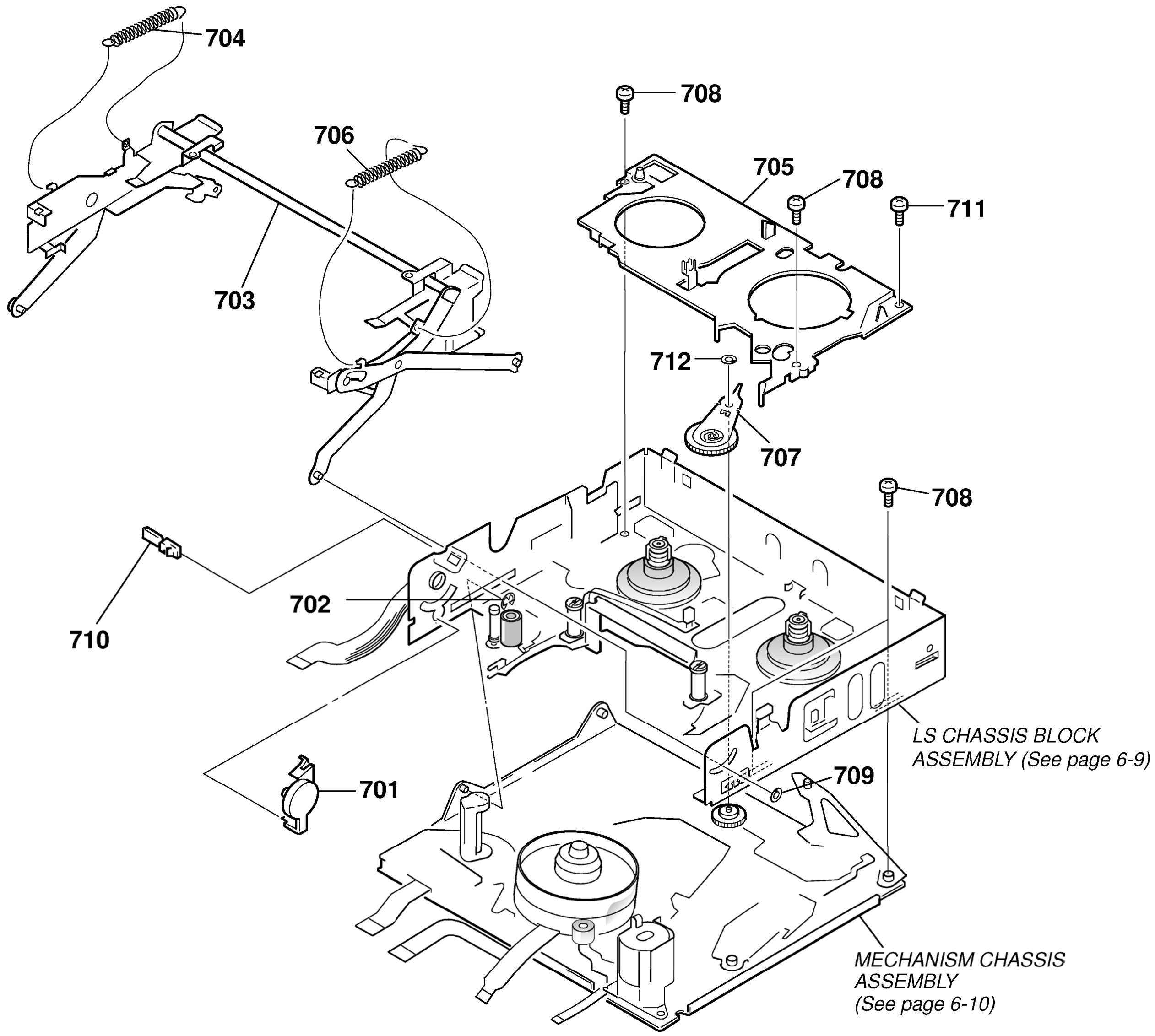
Ref. No.	Part No.	Description	Remarks
301	4-981-286-01	SCREW (M1.7X2) (IB LOCK)	
302	1-676-300-11	FP-152 FLEXIBLE BOARD	
303	3-058-244-01	COVER (M) (98), HINGE	
304	1-960-161-11	HARNESS (DP-78)	
305	X-3949-335-1	CABINET (M) (93) ASSY, P	
306	3-948-339-81	TAPPING	
307	A-7074-141-A	PD-117 (P-VLO) BOARD, COMPLETE	
308	3-713-786-21	SCREW (M2X3)	
309	3-053-702-01	HOLDER (93), LCD (TRV87E)	
309	3-058-243-01	HOLDER (98), LCD (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
310	1-803-844-81	DISPLAY PANEL, LIQUID CRYSTAL (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
310	A-7094-150-A	INDICATION LCD BLOCK ASSY (TRV87E)	
311	3-968-729-91	SCREW (M2), LOCK ACE, P2	
312	3-058-210-01	CABINET (C) (98), P (TRV87E)	
312	3-058-210-11	CABINET (C) (98), P (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
313	3-058-220-51	WINDOW (98), LCD (TRV37E)	
313	3-058-220-61	WINDOW (98), LCD (TRV87E)	
313	3-058-220-71	WINDOW (98), LCD (TRV67E)	
313	3-058-220-81	WINDOW (98), LCD (TRV48E)	
313	3-058-220-91	WINDOW (98), LCD (TRV47E)	
313	3-059-033-21	WINDOW (98), LCD (TRV57E)	
314	3-053-707-01	COVER (C) (93), HINGE (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
314	3-053-707-21	COVER (C) (93), HINGE (TRV87E)	
315	3-948-339-31	SCREW, TAPPING	
316	3-987-623-01	CLAMP, HARNESS	
317	X-3950-108-1	HINGE (98) ASSY	
LCD901	1-803-859-21	INDICATOR MODULE, LIQUID CRYSTAL (SERVICE)	
⚠LED901	1-517-858-11	LIGHT, BACK (TRV87E)	
⚠ND901	1-517-752-31	TUBE, FLUORESCENT, COLD CATHODE	

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

6-1-7. CASSETTE COMPARTMENT ASSEMBLY


704
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LS CHASSIS BLOCK ASSEMBLY (See page 6-9)
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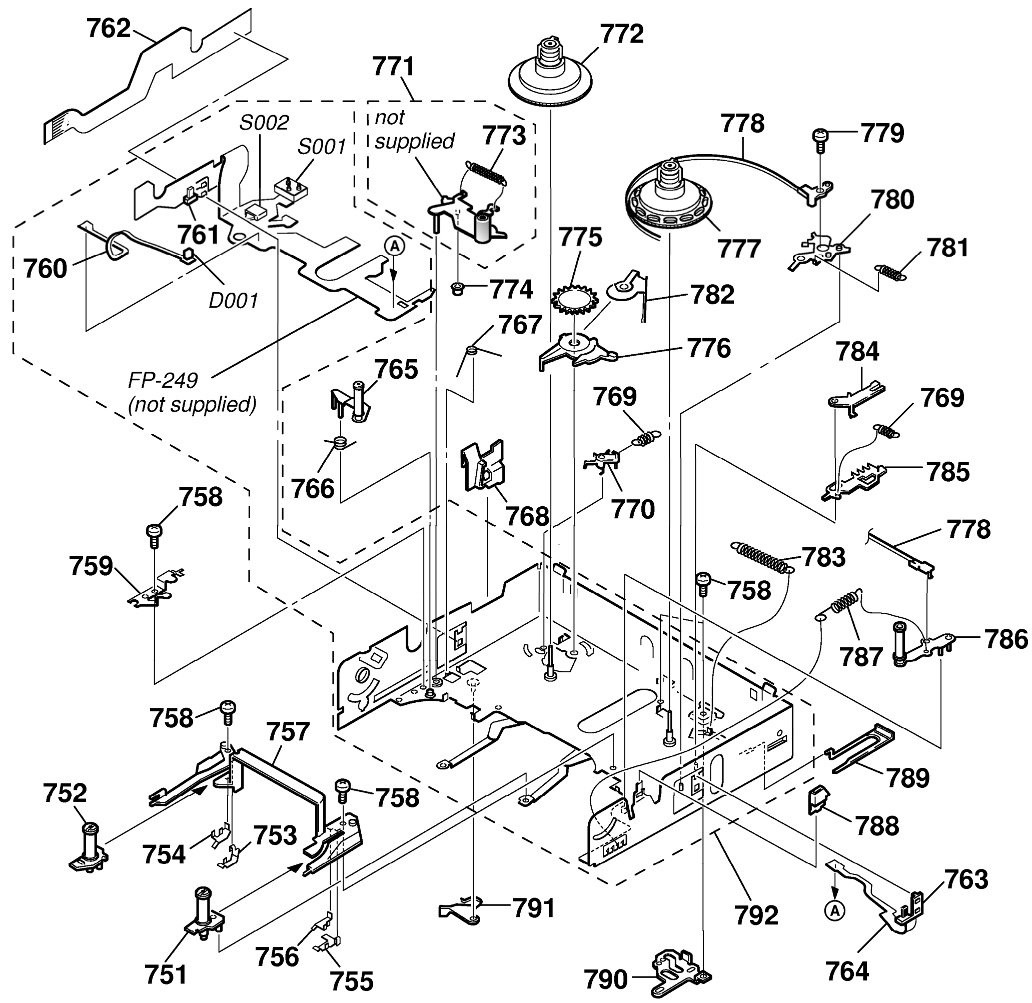
709
MECHANISM CHASSIS ASSEMBLY (See page 6-10)

Ref. No.	Part No.	Description	Remarks
701	A-7040-421-A	DAMPER ASSY	
702	7-624-102-04	STOP RING 1.5, TYPE -E	
703	X-3949-153-2	CASSETTE COMPARTMENT ASSY	
704	3-965-587-03	SPRING (POWER TENSION), TENSION	
705	3-989-479-01	RETAINER (2), GOOSENECK	
706	3-973-268-01	SPRING (POWER TENSION), TENSION	
707	X-3945-399-1	GEAR ASSY, GOOSENECK	
708	3-947-503-01	SCREW (M1.4X2.5)	
709	3-979-686-01	WASHER, STOPPER	
710	3-971-076-01	FASTENER, D	
711	3-976-055-01	SCREW (M1.4X1)	
712	3-331-007-21	WASHER	

6-1-8. LS CHASSIS BLOCK ASSEMBLY


762
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S002
S001
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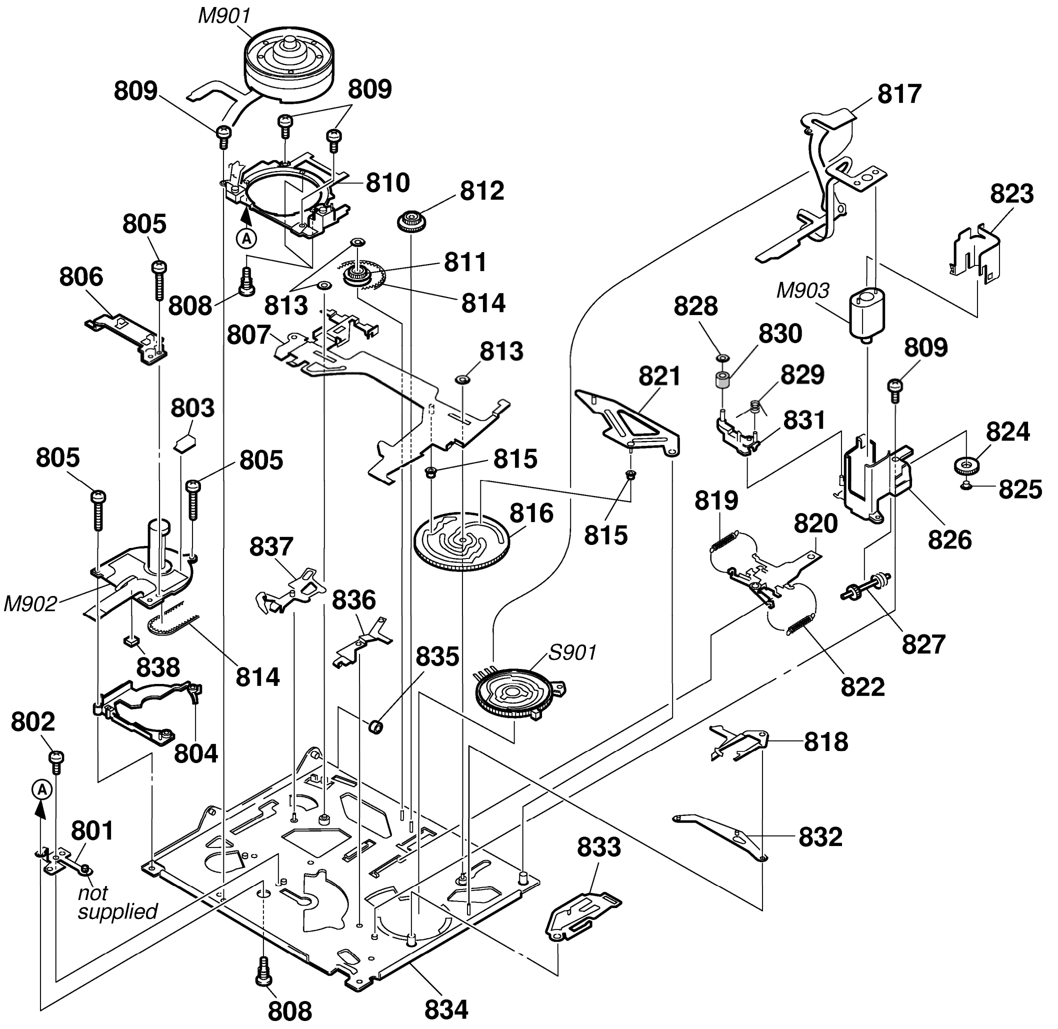
Ref. No.	Part No.	Description	Remarks
751	A-7040-419-A	BASE (S) BLOCK ASSY, GUIDE	
752	A-7040-418-B	BASE (T) BLOCK ASSY, GUIDE	
753	3-965-559-01	STOPPER (T)	
754	3-965-557-01	STOPPER (T), GB	
755	3-965-558-01	STOPPER (S)	
756	3-965-556-01	STOPPER (S), GB	
757	3-965-553-01	RAIL, GUIDE	
758	3-947-503-01	SCREW (M1.4X2.5)	
759	3-965-573-01	RETAINER, TG4	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
761	3-965-552-01	HOLDER, SENSOR (T)	
762	1-657-786-13	FP-221 FLEXIBLE BOARD	
763	3-965-551-01	HOLDER, SENSOR (S)	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
765	A-7040-417-A	ARM BLOCK ASSY, TG4	
766	3-965-574-01	SPRING (RETURN, TG4), TORSION	
767	3-965-575-01	SPRING (PINCH), TORSION	
768	3-965-568-11	GUIDE, LOCK	
769	3-965-562-01	SPRING (RATCHET), TENSION	
770	3-965-581-03	RATCHET, T	
771	X-3949-380-1	ARM ASSY (E), PINCH	
772	X-3945-398-2	DECK ASSY, REEL, T	
773	3-965-648-01	SPRING (PINCH), TENSION	

Ref. No.	Part No.	Description	Remarks
774	3-965-579-01	ROLLER, PINCH PRESS	
775	3-965-563-01	GEAR, T SOFT	
776	3-965-565-01	CLAW, T SOFT	
777	X-3945-397-1	DECK ASSY, REEL, S	
778	X-3945-396-1	BAND ASSY, TENSION REGULATOR	
779	3-945-756-01	SCREW (M1.4X3)	
780	3-965-583-01	ARM, RVS	
781	3-965-580-01	SPRING (ARM, RVS), TENSION	
782	3-966-384-01	SPRING, T SOFT	
783	3-965-578-01	SPRING, TENSION COIL	
784	3-965-560-01	RATCHET, S	
785	3-965-561-01	PLATE, RELEASE, S RATCHET	
786	X-3945-395-1	ARM ASSY, TG1	
787	3-965-576-01	SPRING (TG1), TENSION	
788	3-965-567-01	LID OPEN	
789	3-965-566-01	COVER, LS GUIDE	
* 790	3-965-577-01	PLATE, CAM, LS	
791	3-965-569-01	ARM, EJ	
792	A-7040-427-B	CHASSIS (S1) ASSY, LS	
D001	8-719-988-42	DIODE GL453	
S001	1-682-614-11	SWITCH, PUSH (3KEY)	(Hi8 MP,ME/MP,REC PROOF)
S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C.LOCK)	

6-1-9. MECHANISM CHASSIS ASSEMBLY


M901
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M903
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M902
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S901
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not supplied
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Ref. No.	Part No.	Description	Remarks
801	3-974-320-02	GROUND (IM), SHAFT	
802	3-965-550-02	SCREW (M1.7X1.6)	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
804	3-054-404-01	SPACER, CAPSTAN	
805	3-965-549-01	SCREW (M1.4X6.5)	
806	3-966-349-01	HOLDER, FLEXIBLE	
807	3-971-644-02	SLIDER (2), M	
808	X-3947-895-1	SCREW ASSY, DRUM ATTACHED	
809	3-947-503-01	SCREW (M1.4X2.5)	
810	A-7040-494-A	BASE BLOCK ASSY, DRUM	
811	3-965-527-01	GEAR, CHANGE	
812	3-965-544-01	GEAR, RELAY	
813	3-331-007-21	WASHER	
814	3-965-546-01	BELT, TIMING	
815	3-965-533-01	ROLLER, LS	
816	3-965-528-01	GEAR, CAM	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
818	3-965-529-01	PLATE, REGULATOR, TENSION	
819	3-965-536-01	SPRING (LIMITTER ARM T), COIL	
820	X-3945-388-1	SLIDER ASSY, GL	
821	3-965-532-21	ARM, LS	
822	3-965-535-01	SPRING (LIMITTER ARM S), COIL	
823	3-965-542-01	SHIELD, MOTOR	
824	3-965-539-01	GEAR (A)	
825	3-965-538-01	SLEEVE, MOTOR HOLDER	
826	3-965-540-01	HOLDER, MOTOR	
827	3-965-541-01	SHAFT, WORM	
828	3-321-393-01	WASHER, STOPPER	
829	3-965-724-01	SPRING (RETURN, HC), TORSION	
830	A-7040-423-A	ROLLER BLOCK ASSY, HC	
831	X-3945-407-1	ARM ASSY, HC ROLLER	
832	3-965-531-01	ARM, GL	
833	3-965-530-01	PLATE (2), REGULATOR, TENSION	
834	X-3949-589-3	CHASSIS ASSY, MECHANICAL	
835	3-965-526-02	ROLLER, LS GUIDE	
836	3-965-547-01	ARM, HC DRIVING	
837	3-965-534-01	PLATE, PRESS, PINCH	
838	3-987-953-01	SPACER, RUBBER	
M901	A-7048-899-A	DRUM BLOCK ASSY (DGH-0F1A-R) (PAL)	
M902	8-835-531-32	MOTOR, DC SCE-0601A/C-NP (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
S901	1-762-436-15	SWITCH (ENCODER), ROTARY	

6-2. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX, -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS:
  uF: μF
- RESISTORS
  All resistors are in ohms.
  METAL: metal-film resistor
  METAL OXIDE: Metal Oxide-film resistor
  F: nonflammable
- COILS
  uH: μH
- SEMICONDUCTORS
  In each case, u: μ, for example:
  uA...: μA... , uPA... , μPA... ,
  uPB... , μPB... , uPC... , μPC... ,
  uPD..., μPD...

When indicating parts by reference number, please include the board name.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.

- Abbreviation
  AUS : Australian model
  HK : Hong Kong model
  CN : Chinese model
  EE : East European model
  NE : North European model
  RU : Russian model
  JE : Tourist model

Ref. No.	Part No.	Description	Remarks
	A-7074-161-A	CD-239 (CO) BOARD, COMPLETE (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)	
		**************************************	
		(Ref.No.;2000Series)	
		(IC201 is not included in this complete board.)	
		< CAPACITOR >	
C201	1-135-214-21	TANTAL. CHIP 4.7uF 20%	20V
C204	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C205	1-135-210-11	TANTALUM CHIP 4.7uF 20%	10V
		< CONNECTOR >	
CN201	1-573-354-11	CONNECTOR, FFC/FPC 14P	
		< COIL >	
L201	1-414-757-11	INDUCTOR 100uH	
		< TRANSISTOR >	
Q201	8-729-117-73	TRANSISTOR 2SC4178-F13F14-T1	
		< RESISTOR >	
R201	1-216-797-11	METAL CHIP 10 5%	1/16W
R202	1-216-809-11	METAL CHIP 100 5%	1/16W
R203	1-216-833-91	RES-CHIP 10K 5%	1/16W
	A-7074-148-A	CD-240 (VHXRIBO) BOARD, COMPLETE (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
		**************************************	
		(Ref.No.;2000Series)	
		(IC201 is not included in this complete board.)	
		< CAPACITOR >	
C201	1-135-214-21	TANTAL. CHIP 4.7uF 20%	20V
C204	1-164-156-11	CERAMIC CHIP 0.1uF	25V
C205	1-135-210-11	TANTALUM CHIP 4.7uF 20%	10V
		< CONNECTOR >	
CN201	1-573-354-11	CONNECTOR, FFC/FPC 14P	
		< COIL >	
L201	1-414-757-11	INDUCTOR 100uH	
		< TRANSISTOR >	
Q201	8-729-117-73	TRANSISTOR 2SC4178-F13F14-T1	
		< RESISTOR >	
R201	1-216-797-11	METAL CHIP 10 5%	1/16W
R202	1-216-809-11	METAL CHIP 100 5%	1/16W
R203	1-216-833-91	RES-CHIP 10K 5%	1/16W
	A-7074-134-A	CF-66 (P-HXRIBO) BOARD, COMPLETE (TR918E)	
		**************************************	
	A-7074-152-A	CF-66 (N-LO) BOARD, COMPLETE (TR317E)	
		**************************************	
	A-7074-164-A	CF-66 (P-LO) BOARD, COMPLETE (TR417E/TR427E/TR617E/TR717E)	
		**************************************	
		(Ref.No.;3000Series)	
		< HOLDER >	
BH001	1-550-104-11	HOLDER, BATTERY	
		< BUZZER >	
BZ001	1-529-107-11	BUZZER, PIEZOELECTRIC (TR417E/TR427E/TR617E/TR717E/TR918E)	
BZ002	1-529-104-21	BUZZER, PIEZOELECTRIC (TR317E)	
		< CAPACITOR >	
C003	1-107-826-91	CERAMIC CHIP 0.1uF 10%	16V
C004	1-110-569-11	TANTAL. CHIP 47uF 20%	6.3V
		< CONNECTOR >	
CN001	1-785-760-11	CONNECTOR, FFC/FPC (ZIF) 45P	
CN002	1-774-765-11	CONNECTOR, FFC/FPC 8P	
CN007	1-778-283-11	CONNECTOR, FFC/FPC 4P	
CN008	1-779-328-21	CONNECTOR, FFC/FPC 8P (TR918E)	
CN010	1-691-364-21	CONNECTOR, FFC/FPC (ZIF) 26P	
		< DIODE >	
D002	8-719-421-27	DIODE MA728-(K8).S0	
D005	8-719-073-03	DIODE MA8082-(K8).S0	
D006	8-719-073-03	DIODE MA8082-(K8).S0	
D008	8-719-073-01	DIODE MA111-TX	
		< IC >	
IC001	8-759-573-02	IC BU9735K-E2	

Be sure to read "Precautions upon replacing CCD imager" on page 4-8 when changing the CCD imager.

CF-66 CF-67

Ref. No.	Part No.	Description	Remarks
		< COIL >	
L004	1-469-527-91	INDUCTOR 47uH	
L005	1-469-527-91	INDUCTOR 47uH	
		< TRANSISTOR >	
Q001	8-729-402-42	TRANSISTOR UN5213-TX	
Q002	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX	(TR918E)
Q003	8-729-230-72	TRANSISTOR 2SA1362-YG-EL	(TR918E)
		< RESISTOR >	
R002	1-216-849-11	METAL CHIP 220K 5% 1/16W	(TR918E)
R003	1-216-833-91	RES-CHIP 10K 5% 1/16W	(TR918E)
R004	1-216-853-11	METAL CHIP 470K 5% 1/16W	(TR918E)
R005	1-216-833-91	RES-CHIP 10K 5% 1/16W	
R006	1-216-833-91	RES-CHIP 10K 5% 1/16W	
R007	1-216-833-91	RES-CHIP 10K 5% 1/16W	
R008	1-216-833-91	RES-CHIP 10K 5% 1/16W	
R009	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TR918E)
R010	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR918E)
R011	1-216-855-11	METAL CHIP 680K 5% 1/16W	
R012	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R013	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R014	1-216-826-11	METAL CHIP 2.7K 5% 1/16W	
R015	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R016	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	
R017	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R018	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R019	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	
R020	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R021	1-216-828-11	METAL CHIP 3.9K 5% 1/16W	
R023	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R025	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	
R032	1-216-838-11	METAL CHIP 27K 5% 1/16W	
R040	1-216-809-11	METAL CHIP 100 5% 1/16W	(TR918E)
R043	1-216-809-11	METAL CHIP 100 5% 1/16W	(TR918E)
R048	1-216-864-11	METAL CHIP 0 5% 1/16W	
		< SWITCH >	
S001	1-771-138-61	SWITCH, KEY BOARD (DIGITAL EFFECT)	(TR918E)
S002	1-771-138-61	SWITCH, KEY BOARD (DATE)	
S003	1-771-138-61	SWITCH, KEY BOARD (PROGRAM AE)	(TR918E)
S005	1-771-138-61	SWITCH, KEY BOARD (COUNTER RESET)	
S006	1-771-029-21	SWITCH, TACTILE (MENU)	
S007	1-771-029-21	SWITCH, TACTILE (EXPOSURE)	
S008	1-771-025-41	SWITCH, ROTARY (ENCODER)	(SEL/PUSH EXEC)
S009	1-771-138-61	SWITCH, KEY BOARD (BACK LIGHT)	
S010	1-771-138-61	SWITCH, KEY BOARD (TITLE)	
S011	1-771-138-61	SWITCH, KEY BOARD (TIME)	
S012	1-771-138-61	SWITCH, KEY BOARD (FADER)	
S014	1-771-138-61	SWITCH, KEY BOARD (PROGRAM AE)	(TR317E/TR417E/TR427E/TR617E/TR717E)
S015	1-771-138-61	SWITCH, KEY BOARD (PICTURE EFFECT)	(TR317E/TR417E/TR427E/TR617E/TR717E)
S016	1-771-138-61	SWITCH, KEY BOARD (PICTURE EFFECT)	(TR918E)

Ref. No.	Part No.	Description	Remarks
	A-7074-120-A	CF-67 (N-VHMMBO) BOARD, COMPLETE	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
		**************************************	
	A-7074-126-A	CF-67 (N-VHRIBO) BOARD, COMPLETE	(TRV87E)
		**************************************	
			(Ref.No.;4000Series)
		< HOLDER >	
BH001	1-550-104-11	HOLDER, BATTERY	
		< CAPACITOR >	
C001	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C004	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V	
		< CONNECTOR >	
CN001	1-785-760-11	CONNECTOR, FFC/FPC (ZIF) 45P	
CN002	1-566-540-11	CONNECTOR, FPC (NON ZIF) 8P	
* CN003	1-580-055-21	PIN, CONNECTOR (SMD) 2P	
CN004	1-779-064-11	PIN, CONNECTOR (PC BOARD) 12P	
CN005	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P	
CN007	1-778-283-11	CONNECTOR, FFC/FPC 4P	
CN008	1-766-644-21	CONNECTOR, FFC/FPC 8P	(TRV87E)
* CN009	1-580-055-21	PIN, CONNECTOR (SMD) 2P	
		< DIODE >	
D002	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D005	8-719-073-03	DIODE MA8082-(K8).S0	
D006	8-719-073-03	DIODE MA8082-(K8).S0	
D008	8-719-421-27	DIODE MA728-(K8).S0	
D009	8-719-073-01	DIODE MA111-TX	
		< TRANSISTOR >	
Q001	8-729-402-42	TRANSISTOR UN5213-TX	
Q002	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX	(TRV87E)
Q003	8-729-230-72	TRANSISTOR 2SA1362-YG-EL	(TRV87E)
		< RESISTOR >	
R002	1-216-833-91	RES-CHIP 10K 5% 1/16W	
R003	1-216-833-91	RES-CHIP 10K 5% 1/16W	
R004	1-216-833-91	RES-CHIP 10K 5% 1/16W	
R005	1-216-833-91	RES-CHIP 10K 5% 1/16W	
R006	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R007	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R008	1-216-822-11	METAL CHIP 1.2K 5% 1/16W	
R009	1-216-849-11	METAL CHIP 220K 5% 1/16W	(TRV87E)
R010	1-216-833-91	RES-CHIP 10K 5% 1/16W	(TRV87E)
R011	1-216-853-11	METAL CHIP 470K 5% 1/16W	(TRV87E)

Ref. No.	Part No.	Description			Remarks
R012	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R013	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R014	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R015	1-216-837-11	METAL CHIP	22K	5%	1/16W (TRV87E)
R016	1-216-829-11	METAL CHIP	4.7K	5%	1/16W (TRV87E)
R017	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R018	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R019	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R020	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R021	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R022	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R026	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R027	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R034	1-216-838-11	METAL CHIP	27K	5%	1/16W
R036	1-216-838-11	METAL CHIP	27K	5%	1/16W
R043	1-216-864-11	METAL CHIP	0	5%	1/16W
R048	1-216-864-11	METAL CHIP	0	5%	1/16W
		< SWITCH >			
S001	1-771-138-61	SWITCH, KEY BOARD (DIGITAL EFFECT)			(TRV87E)
S002	1-771-138-61	SWITCH, KEY BOARD (DATE)			
S003	1-771-029-21	SWITCH, TACTILE (PROGRAM AE)			
S004	1-771-138-61	SWITCH, KEY BOARD (PICTURE EFFECT)			
S005	1-771-138-61	SWITCH, KEY BOARD (COUNTER RESET)			
S006	1-771-138-61	SWITCH, KEY BOARD (MENU)			
S007	1-771-029-21	SWITCH, TACTILE (EXPOSURE)			
S008	1-771-138-61	SWITCH, KEY BOARD (END SEARCH)			
S009	1-771-025-41	SWITCH, ROTARY (ENCODER)			(SEL/PUSH EXEC)
S010	1-771-029-21	SWITCH, TACTILE (BACK LIGHT)			
S011	1-771-138-61	SWITCH, KEY BOARD (TITLE)			
S012	1-771-138-61	SWITCH, KEY BOARD (TIME)			
S013	1-771-029-31	SWITCH, TACTILE (FADER)			
S014	1-771-138-61	SWITCH, KEY BOARD (DISPLAY)			

Ref. No.	Part No.	Description			Remarks
	A-7074-113-A	DD-134 (VO) BOARD, COMPLETE			(TRV37E/TRV47E/TRV48E)
		**************************************			
	A-7074-125-A	DD-134 (VHXRIBO) BOARD, COMPLETE			(TRV57E/TRV67E/TRV87E)
		**************************************			
	A-7074-133-A	DD-134 (HXRIBO) BOARD, COMPLETE			(TR918E)
		**************************************			
	A-7074-151-A	DD-134 (L0) BOARD, COMPLETE			(TR317E/TR417E/427E)
		**************************************			
	A-7074-166-A	DD-134 (HMMBO) BOARD, COMPLETE			(TR617E/TR717E)
		**************************************			
					(Ref.No.;2000Series)
		< CAPACITOR >			
C301	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C302	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C303	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C304	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C305	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V

Ref. No.	Part No.	Description			Remarks
C308	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C309	1-164-172-11	CERAMIC CHIP	0.0056uF	10%	25V
C310	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C311	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C312	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C313	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C314	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C315	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C316	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C317	1-162-962-11	CERAMIC CHIP	470PF	10%	50V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C318	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C321	1-113-991-11	TANTAL. CHIP	33uF	20%	16V
C323	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C324	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C325	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C326	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C327	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C328	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C329	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C330	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C332	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
C333	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
C335	1-162-974-11	CERAMIC CHIP	0.01uF		50V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C336	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
C337	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
C338	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V
C339	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C340	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C341	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C342	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C343	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C344	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C345	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C346	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C346	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V
C347	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C348	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C349	1-164-505-11	CERAMIC CHIP	2.2uF		16V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C350	1-164-156-11	CERAMIC CHIP	0.1uF		25V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C351	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C352	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C353	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V
C354	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C355	1-125-822-11	TANTALUM	10uF	20%	10V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C356	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C358	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C360	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C361	1-164-505-11	CERAMIC CHIP	2.2uF		16V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C363	1-164-505-11	CERAMIC CHIP	2.2uF		16V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C364	1-164-506-11	CERAMIC CHIP	4.7uF		16V
C366	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C367	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

DD-134

Ref. No.	Part No.	Description	Remarks
		< CONNECTOR >	
* CN301	1-580-756-21	PIN, CONNECTOR (SMD) 7P	
CN931	1-691-520-11	CONNECTOR, BOARD TO BOARD 48P	
CN933	1-779-893-11	PIN, CONNECTOR (PC BOARD) 8P	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
		< DIODE >	
D301	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D302	8-719-421-27	DIODE MA728-(K8).S0	
D304	8-719-073-03	DIODE MA8082-(K8).S0	
D305	8-719-056-89	DIODE MA8120-TX	
D306	8-719-078-02	DIODE 1SS357(T3SONY1)	
D308	8-719-078-02	DIODE 1SS357(T3SONY1)	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
D310	8-719-078-02	DIODE 1SS357(T3SONY1)	
D311	8-719-078-02	DIODE 1SS357(T3SONY1)	
D312	8-719-078-02	DIODE 1SS357(T3SONY1)	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
D313	8-719-078-02	DIODE 1SS357(T3SONY1)	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
		< FUSE >	
⚠F302	1-576-406-11	FUSE, MICRO (1608) (1.4A 32V)	
⚠F303	1-576-406-11	FUSE, MICRO (1608) (1.4A 32V)	
⚠F304	1-576-406-11	FUSE, MICRO (1608) (1.4A 32V)	
⚠F305	1-576-406-11	FUSE, MICRO (1608) (1.4A 32V)	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
⚠F306	1-576-406-11	FUSE, MICRO (1608) (1.4A 32V)	
		(TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)	
		< FERRITE BEAD >	
FB310	1-414-760-21	FERRITE 0UH	
FB321	1-414-760-21	FERRITE 0UH	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
		< IC >	
IC301	8-752-090-20	IC CXA3057R-T6	
		< COIL >	
L301	1-416-670-11	INDUCTOR 33uH	
L302	1-416-669-11	INDUCTOR 22uH	
L303	1-412-056-11	INDUCTOR 4.7uH	
L304	1-416-669-11	INDUCTOR 22uH	
L305	1-416-670-11	INDUCTOR 33uH	
L306	1-416-669-11	INDUCTOR 22uH	
L307	1-412-056-11	INDUCTOR 4.7uH	
L308	1-412-056-11	INDUCTOR 4.7uH	
L309	1-412-056-11	INDUCTOR 4.7uH	
L313	1-414-400-41	INDUCTOR 22uH	
L314	1-412-056-11	INDUCTOR 4.7uH	
L315	1-414-400-41	INDUCTOR 22uH	
L316	1-412-056-11	INDUCTOR 4.7uH	
L317	1-414-400-41	INDUCTOR 22uH	
L318	1-416-669-11	INDUCTOR 22uH	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
L319	1-412-056-11	INDUCTOR 4.7uH	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	

Ref. No.	Part No.	Description	Remarks
		< TRANSISTOR >	
Q301	8-729-047-68	TRANSISTOR 2SK1830-TE85L	
Q302	8-729-046-77	TRANSISTOR SI4963DY-T1	
Q303	8-729-804-41	TRANSISTOR 2SB1122-ST-TD	
Q304	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q305	8-729-047-68	TRANSISTOR 2SK1830-TE85L	
Q307	8-729-804-41	TRANSISTOR 2SB1122-ST-TD	
Q308	8-729-046-98	TRANSISTOR CPH6702-TL	
Q309	8-729-046-98	TRANSISTOR CPH6702-TL	
Q310	8-729-046-98	TRANSISTOR CPH6702-TL	
Q311	8-729-046-98	TRANSISTOR CPH6702-TL	
Q312	8-729-046-98	TRANSISTOR CPH6702-TL	
Q313	8-729-044-58	TRANSISTOR SI2304DS-T1	
Q316	8-729-046-98	TRANSISTOR CPH6702-TL	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
Q317	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q318	8-729-101-07	TRANSISTOR 2SB798-T1-DLDK	
Q319	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q320	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q321	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q322	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q323	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q325	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q327	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
Q328	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
Q329	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q330	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q331	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q332	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
Q333	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
		< RESISTOR >	
R301	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R302	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R303	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R304	1-216-839-11	METAL CHIP 33K 5% 1/16W	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
R305	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R306	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R307	1-216-864-11	METAL CHIP 0 5% 1/16W	
R309	1-216-853-11	METAL CHIP 470K 5% 1/16W	
R310	1-216-857-11	METAL CHIP 1M 5% 1/16W	
R311	1-216-813-11	METAL CHIP 220 5% 1/16W	
R312	1-216-839-11	METAL CHIP 33K 5% 1/16W	
R313	1-216-150-91	RES-CHIP 10 5% 1/8W	
R314	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	
R315	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R316	1-216-821-11	METAL CHIP 1K 5% 1/16W	
R317	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	
R318	1-216-837-11	METAL CHIP 22K 5% 1/16W	
		(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
R319	1-216-841-11	METAL CHIP 47K 5% 1/16W	
R322	1-216-296-91	SHORT 0	
		(TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)	
R323	1-216-841-11	METAL CHIP 47K 5% 1/16W	

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
R324	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R325	1-216-841-11	METAL CHIP	47K	5%	1/16W
R326	1-216-837-11	METAL CHIP	22K	5%	1/16W
R327	1-218-879-11	METAL CHIP	22K	0.5%	1/16W
R328	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
R329	1-216-845-11	METAL CHIP	100K	5%	1/16W
R330	1-216-864-11	METAL CHIP	0	5%	1/16W
R331	1-216-864-11	METAL CHIP	0	5%	1/16W
R332	1-218-877-11	METAL CHIP	18K	0.5%	1/16W
R333	1-216-837-11	METAL CHIP	22K	5%	1/16W
R335	1-218-891-11	METAL CHIP	68K	0.5%	1/16W
R336	1-218-895-11	METAL CHIP	100K	0.5%	1/16W
					(TR317E/TR417E/TR427E/TR918E/TRV37E/TRV47E/TRV48E)
R336	1-218-891-11	METAL CHIP	68K	0.5%	1/16W
					(TR617E/TR717E/TRV57E/TRV67E/TRV87E)
R337	1-216-864-11	METAL CHIP	0	5%	1/16W
					(TR317E/TR417E/TR427E/TR918E/TRV37E/TRV47E/TRV48E)
R337	1-218-879-11	METAL CHIP	22K	0.5%	1/16W
					(TR617E/TR717E/TRV57E/TRV67E/TRV87E)
R338	1-218-903-11	METAL CHIP	220K	0.5%	1/16W
R339	1-216-845-11	METAL CHIP	100K	5%	1/16W
					(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R340	1-216-841-11	METAL CHIP	47K	5%	1/16W
R341	1-216-845-11	METAL CHIP	100K	5%	1/16W
R342	1-216-845-11	METAL CHIP	100K	5%	1/16W
					(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R343	1-216-837-11	METAL CHIP	22K	5%	1/16W
R344	1-216-864-11	METAL CHIP	0	5%	1/16W
					(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R345	1-218-903-11	METAL CHIP	220K	0.5%	1/16W
					(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R346	1-218-891-11	METAL CHIP	68K	0.5%	1/16W
					(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R347	1-218-895-11	METAL CHIP	100K	0.5%	1/16W
R348	1-218-887-11	METAL CHIP	47K	0.5%	1/16W
R349	1-216-864-11	METAL CHIP	0	5%	1/16W
					(TR317E/TR417E/TR427E/TR918E/TRV37E/TRV47E/TRV48E)
R349	1-218-877-11	METAL CHIP	18K	0.5%	1/16W
					(TR617E/TR717E/TRV57E/TRV67E/TRV87E)
R354	1-216-833-91	RES-CHIP	10K	5%	1/16W
					(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R357	1-218-879-11	METAL CHIP	22K	0.5%	1/16W
R358	1-218-871-11	METAL CHIP	10K	0.5%	1/16W
		< TRANSFORMER >			
⚠T301	1-435-252-21	TRANSFORMER, DC-DC CONVERTER			

Ref. No.	Part No.	Description			Remarks
	A-7074-162-A	EJ-29 (CO) BOARD, COMPLETE			
					(TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)
					**
					(Ref.No.;2000Series)
		< CONNECTOR >			
CN251	1-766-346-21	CONNECTOR, FFC/FPC 16P			
CN252	1-764-709-11	CONNECTOR, FFC/FPC 10P			
CN253	1-764-703-11	CONNECTOR, FFC/FPC (LIF) 4P			
		< DIODE >			
D253	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D256	8-719-073-01	DIODE MA111-TX			
D257	8-719-073-01	DIODE MA111-TX			
		< FERRITE BEAD >			
FB251	1-414-760-21	FERRITE	0UH		
FB252	1-414-760-21	FERRITE	0UH		
FB253	1-414-760-21	FERRITE	0UH		
		< JACK >			
J251	1-565-276-31	JACK, WING SMALL (LANC◐)			
		< RESISTOR >			
R251	1-216-821-11	METAL CHIP	1K	5%	1/16W
R252	1-216-821-11	METAL CHIP	1K	5%	1/16W
R253	1-216-821-11	METAL CHIP	1K	5%	1/16W
R254	1-216-821-11	METAL CHIP	1K	5%	1/16W
R255	1-216-821-11	METAL CHIP	1K	5%	1/16W
R256	1-216-821-11	METAL CHIP	1K	5%	1/16W
R257	1-216-821-11	METAL CHIP	1K	5%	1/16W
R258	1-216-821-11	METAL CHIP	1K	5%	1/16W
R259	1-216-029-00	METAL CHIP	150	5%	1/10W
		< SWITCH >			
S251	1-771-331-21	SWITCH, PUSH (1 KEY) (EJECT⏏)			

Ref. No.	Part No.	Description			Remarks
	A-7074-149-A	EJ-30(VHXRIBO) BOARD, COMPLETE			
					(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
					**
					(Ref.No.;2000Series)
		< CONNECTOR >			
CN251	1-766-346-21	CONNECTOR, FFC/FPC 16P			
CN252	1-764-709-11	CONNECTOR, FFC/FPC 10P			
CN253	1-764-703-11	CONNECTOR, FFC/FPC (LIF) 4P			
		< DIODE >			
D253	8-719-062-16	DIODE 01ZA8.2(TPL3)			
D256	8-719-073-01	DIODE MA111-TX			
D257	8-719-073-01	DIODE MA111-TX			
		< FERRITE BEAD >			
FB251	1-414-228-11	INDUCTOR CHIP	0UH		
FB252	1-414-228-11	INDUCTOR CHIP	0UH		
FB253	1-414-228-11	INDUCTOR CHIP	0UH		
		< JACK >			
J251	1-565-276-31	JACK, WING SMALL (LANC◐)			
		< RESISTOR >			
R251	1-216-821-11	METAL CHIP	1K	5%	1/16W
R252	1-216-821-11	METAL CHIP	1K	5%	1/16W
R253	1-216-821-11	METAL CHIP	1K	5%	1/16W
R254	1-216-821-11	METAL CHIP	1K	5%	1/16W
R255	1-216-821-11	METAL CHIP	1K	5%	1/16W
R256	1-216-821-11	METAL CHIP	1K	5%	1/16W
R257	1-216-821-11	METAL CHIP	1K	5%	1/16W
R258	1-216-821-11	METAL CHIP	1K	5%	1/16W
R259	1-216-029-00	METAL CHIP	150	5%	1/10W

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

EJ-30 FP-249 FP-355 FP-356 MA-374

Ref. No.	Part No.	Description	Remarks
		< SWITCH >	
S251	1-771-331-21	SWITCH, PUSH (1 KEY) (EJECT⏏)	
		FP-249 MOUNT (Not supplied)	
		**************************	
			(Ref.No.;1000Series)
	3-965-552-01	HOLDER(T), SENSOR	
		< HOLE ELEMENT >	
H001	8-719-061-28	DIODE HW-105C-FT-V (S REEL)	
H002	8-719-061-28	DIODE HW-105C-FT-V (T REEL)	
		< TRANSISTOR >	
Q001	8-729-907-25	PHOTO TRANISTOR PT4850F (TAPE TOP)	
		< SWITCH >	
S001	1-692-614-11	SWITCH, PUSH (3 KEY)	
	1-658-213-11	FP-355 FLEXIBLE BOARD	
		********************	
			(Ref.No.;1000Series)
		< DIODE >	
D001	8-719-988-42	DIODE GL453	
	1-658-214-11	FP-356 FLEXIBLE BOARD	
		********************	
			(Ref.No.;1000Series)
	3-965-551-01	HOLDER(S), SENSOR	
		< TRANSISTOR >	
Q002	8-729-907-25	PHOTO TRANISTOR PT4850F (TAPE END)	
	A-7074-135-A	MA-374 (HXRIBO) BOARD, COMPLETE	(TR918E)
		**	
	A-7074-153-A	MA-374 (LO) BOARD, COMPLETE	(TR317E/TR417E)
		**	
	A-7074-157-A	MA-374 (O) BOARD, COMPLETE (TR427E)	
		************************************	
	A-7074-167-A	MA-374 (HMMBO) BOARD, COMPLETE	(TR617E/TR717E)
		**	
			(Ref.No.;3000Series)
		< CAPACITOR >	
C301	1-107-686-11	TANTAL. CHIP 4.7uF 20% 16V	(TR918E)
C302	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR918E)
C303	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR918E)
C304	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR918E)
C305	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR918E)

Ref. No.	Part No.	Description	Remarks
C321	1-162-960-11	CERAMIC CHIP 220PF 10% 50V	(TR317E/TRV417E)
C322	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	(TR317E/TR417E/TR427E/TR617E/TR717E)
C323	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR918E)
C325	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR317E/TR417E/TR427E/TR617E/TR717E)
C326	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR918E)
C327	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TR918E)
C328	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TR918E)
C329	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR918E)
C330	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TR317E/TR417E/TR427E/TR617E/TR717E)
C331	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR918E)
C332	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR918E)
C333	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	(TR317E/TR417E/TR427E/TR617E/TR717E)
C334	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR918E)
C335	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR918E)
C336	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR317E/TR417E/TR427E/TR617E/TR717E)
C337	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR918E)
C338	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR918E)
C339	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	(TR918E)
C340	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	(TR918E)
C341	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	(TR317E/TR417E/TR427E/TR617E/TR717E
C342	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TR317E/TR417E/TR427E/TR617E/TR717E)
C343	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	(TR918E)
C344	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	(TR918E)
C345	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	(TR918E)
C346	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	(TR918E)
C347	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	(TR918E)
C348	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	(TR918E)
C349	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TR918E)
C350	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TR918E)
C351	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TR918E)

Ref. No.	Part No.	Description	Remarks
C352	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TR918E)
C353	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TR317E/TR417E/TR427E/TR617E/TR717E)
C354	1-104-851-11	TANTAL. CHIP 10uF 20% 4V	(TR317E/TR417E/TR427E/TR617E/TR717E)
C355	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR918E)
C356	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TR317E/TR417E/TR427E/TR617E/TR717E)
C357	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	
C358	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V	
C359	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	(TR317E/TR417E/TR427E/TR617E/TR717E)
C360	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TR317E/TR417E/TR427E/TR617E/TR717E)
C362	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TR918E)
C363	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TR918E)
C364	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TR918E)
		< CONNECTOR >	
* CN301	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P	
* CN302	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P	(TR918E)
CN303	1-779-334-11	CONNECTOR, FFC/FPC 20P	
		< DIODE >	
D301	8-719-078-23	DIODE DCR2815	(TR918E)
D302	8-719-060-65	DIODE LNA4905L01S0	
D303	8-719-067-44	DIODE CL-310IRS-X-TU	(TR317E/TR417E/TR427E/TR617E/TR717E)
D304	8-719-061-82	DIODE TLSU1002(TPX1,SONY)	
D305	8-719-073-01	DIODE MA111-TX	
D321	8-719-073-03	DIODE MA8082-(K8).S0	
D322	8-719-073-03	DIODE MA8082-(K8).S0	(TR918E)
D323	8-719-073-01	DIODE MA111-TX	
		< FUSE >	
⚠F301	1-533-874-11	FUSE, MICRO (0.2A 24V)	
		< IC >	
IC301	8-749-012-83	IC PNA4S13M01S0	(TR427E/TR617E/TR717E/TR918E)
IC321	8-759-643-77	IC BH7870KV-E2	(TR918E)
IC322	8-759-339-63	IC NJM2118V-TE2	(TR317E/TR417E/TR427E/TR617E/TR717E)
		< JACK >	
J321	1-691-737-11	JACK (SMALL TYPE) (MIC)	(TR918E)
J321	1-568-027-11	JACK, SMALL TYPE (MIC)	(TR317E/TR417E/TR427E/TR617E/TR717E)
		< COIL >	
L301	1-414-754-11	INDUCTOR 10uH	(TR918E)
L301	1-216-295-91	SHORT 0 (Note)	(TR317E/417/TR427E/TR617E/TR717E)

Ref. No.	Part No.	Description	Remarks
		< TRANSISTOR >	
Q301	8-729-402-42	TRANSISTOR UN5213-TX	(TR317E/TR417E/TR427E/TR617E/TR717E)
Q302	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX	(TR918E)
Q302	8-729-422-51	TRANSISTOR UN5110-QRS-TX	(TR317E/TR417E/TR427E/TR617E/TR717E)
Q303	8-729-026-48	TRANSISTOR 2SA1037AK-T146-Q	(TR918E)
Q304	8-729-920-85	TRANSISTOR 2SD1664-T100-QR	
Q321	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX	(TR317E/TR417E/TR427E/TR617E/TR717E)
Q322	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX	(TR317E/TR417E/TR427E/TR617E/TR717E)
		< RESISTOR >	
R301	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	(TR918E)
R302	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR918E)
R303	1-216-810-11	METAL CHIP 120 5% 1/16W	(TR918E)
R304	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R305	1-216-817-11	METAL CHIP 470 5% 1/16W	
R306	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR918E)
R307	1-216-815-11	METAL CHIP 330 5% 1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R308	1-216-311-00	METAL CHIP 6.8 5% 1/10W	(TR918E)
R308	1-216-309-00	METAL CHIP 5.6 5% 1/10W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R309	1-216-302-00	METAL CHIP 2.7 5% 1/10W	
R310	1-216-864-11	METAL CHIP 0 5% 1/16W	
R312	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R313	1-216-864-11	METAL CHIP 0 5% 1/16W	
R314	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TR617E/TR717E/TR918E)
R315	1-216-847-11	METAL CHIP 150K 5% 1/16W	(TR617E/TR717E/TR918E)
R321	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR918E)
R322	1-216-864-11	METAL CHIP 0 5% 1/16W	
R323	1-216-864-11	METAL CHIP 0 5% 1/16W	
R324	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR918E)
R325	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TR918E)
R326	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TR918E)
R327	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R328	1-216-817-11	METAL CHIP 470 5% 1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R329	1-216-833-91	RES-CHIP 10K 5% 1/16W	(TR918E)
R331	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TR918E)

Note : Resistor is mounted to the location where L301 is printed.

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

MA-374 MA-375

Ref. No.	Part No.	Description	Remarks
R332	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R333	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R334	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TR918E)
R335	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R336	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TR918E)
R337	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TR918E)
R338	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR918E)
R339	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR918E)
R340	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R341	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R342	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	(TR918E)
R343	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	(TR918E)
R344	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R345	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R346	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R347	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R348	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R349	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R350	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TR918E)
R351	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TR918E)
R352	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR918E)
R353	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TR918E)
R354	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TR918E)
R355	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR918E)
R356	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TR918E)
R357	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TR918E)
R358	1-216-803-11	METAL CHIP 33 5% 1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E)
R359	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	(TR918E)
R360	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TR918E)
R361	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TR918E)
R362	1-216-818-11	METAL CHIP 560 5% 1/16W	(TR918E)
R363	1-216-833-91	RES-CHIP 10K 5% 1/16W	(TR918E)
R364	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR918E)
R365	1-216-864-11	METAL CHIP 0 5% 1/16W	(TR918E)
		< SWITCH >	
S301	1-692-605-11	SWITCH, SLIDE (LIGHT ON/AUTO/OFF)	(TR617E/TR717E/TR918E)
S302	1-771-331-51	SWITCH, PUSH (1 KEY) (CAMERA ON)	
S303	1-771-331-21	SWITCH, PUSH (1 KEY) (PLAYER ON)	

Ref. No.	Part No.	Description	Remarks
	A-7074-114-A	MA-375 (N-VLO) BOARD, COMPLETE	(TRV37E)
	A-7074-191-A	MA-375 (VO) BOARD, COMPLETE	(TRV47E/TRV48E)
	A-7074-121-A	MA-375 (N-VHMMBO) BOARD, COMPLETE	(TRV57E/TRV67E)
	A-7074-127-A	MA-375 (N-VHXRIBO) BOARD, COMPLETE	(TRV87E)
			(Ref.No.;3000Series)
		< CAPACITOR >	
C301	1-107-686-11	TANTAL. CHIP 4.7uF 20% 16V	(TRV87E)
C302	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)
C303	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)
C304	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)
C305	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)
C322	1-163-809-11	CERAMIC CHIP 0.047uF 10% 25V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C323	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV87E)
C325	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C326	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)
C327	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV87E)
C328	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV87E)
C329	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)
C330	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C331	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV87E)
C332	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV87E)
C333	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C334	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)
C335	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)
C336	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C337	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)

Ref. No.	Part No.	Description	Remarks
C338	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)
C339	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	(TRV87E)
C340	1-110-563-11	CERAMIC CHIP 0.068uF 10% 16V	(TRV87E)
C341	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C342	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C343	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	(TRV87E)
C344	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	(TRV87E)
C345	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	(TRV87E)
C346	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	(TRV87E)
C347	1-164-245-11	CERAMIC CHIP 0.015uF 10% 25V	(TRV87E)
C348	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	(TRV87E)
C349	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TRV87E)
C350	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TRV87E)
C351	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TRV87E)
C352	1-162-969-11	CERAMIC CHIP 0.0068uF 10% 25V	(TRV87E)
C353	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C354	1-104-851-11	TANTAL. CHIP 10uF 20% 4V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C355	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV87E)
C356	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C357	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	
C358	1-115-467-11	CERAMIC CHIP 0.22uF 10% 10V	
C359	1-109-982-11	CERAMIC CHIP 1uF 10% 10V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C360	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
C362	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV87E)
C363	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV87E)
C364	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV87E)
		< CONNECTOR >	
* CN301	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P	
* CN302	1-695-320-21	PIN, CONNECTOR (1.5MM)(SMD) 2P	(TRV87E)
CN303	1-779-334-11	CONNECTOR, FFC/FPC 20P	
		< DIODE >	
D301	8-719-078-23	DIODE DCR2815	(TRV87E)
D302	8-719-060-65	DIODE LNA4905L01S0	
D303	8-719-067-44	DIODE CL-310IRS-X-TU	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
D304	8-719-061-82	DIODE TLSU1002(TPX1,SONY)	
D305	8-719-073-01	DIODE MA111-TX	
D321	8-719-073-03	DIODE MA8082-(K8).S0	
D322	8-719-073-03	DIODE MA8082-(K8).S0	(TRV87E)
D323	8-719-073-01	DIODE MA111-TX	
		< FUSE >	
⚠F301	1-533-874-11	FUSE, MICRO (0.2A 24V)	
		< FERRITE BEAD >	
FB321	1-414-760-21	FERRITE 0UH	
		< IC >	
IC301	8-749-012-83	IC PNA4S13M01S0	(TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
IC321	8-759-643-77	IC BH7870KV-E2	(TRV87E)
IC322	8-759-339-63	IC NJM2118V-TE2	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
		< JACK >	
J321	1-691-737-11	JACK (SMALL TYPE) (MIC)	(TRV87E)
J321	1-568-027-11	JACK, SMALL TYPE (MIC)	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
		< COIL >	
L301	1-414-754-11	INDUCTOR 10uH	(TRV87E)
L301	1-216-295-91	SHORT 0 (Note)	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
		< TRANSISTOR >	
Q301	8-729-402-42	TRANSISTOR UN5213-TX	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
Q302	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX	(TRV87E)
Q302	8-729-422-51	TRANSISTOR UN5110-QRS-TX	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
Q303	8-729-026-48	TRANSISTOR 2SA1037AK-T146-Q	(TRV87E)
Q304	8-729-920-85	TRANSISTOR 2SD1664-T100-QR	
Q316	8-729-046-98	TRANSISTOR XN09D58001S0	
Q321	8-729-230-63	TRANSISTOR 2SD1819A-QRS-TX	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
Q322	8-729-420-24	TRANSISTOR 2SB1218A-QRS-TX	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
Q327	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
Q328	8-729-037-52	TRANSISTOR 2SD2216J-QR(K8).SO	
Q332	8-729-037-53	TRANSISTOR 2SB1462J-QR(K8).SO	
		< RESISTOR >	
R301	1-216-823-11	METAL CHIP 1.5K 5% 1/16W	(TRV87E)
R302	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87E)
R303	1-216-810-11	METAL CHIP 120 5% 1/16W	(TRV87E)
R304	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R305	1-216-817-11	METAL CHIP 470 5% 1/16W	

Note : Resistor is mounted to the location where L301 is printed.

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description	Remarks
R306	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87E)
R307	1-216-815-11	METAL CHIP 330 5% 1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R308	1-216-311-00	METAL CHIP 6.8 5% 1/10W	(TRV87E)
R308	1-216-309-00	METAL CHIP 5.6 5% 1/10W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R309	1-216-302-00	METAL CHIP 2.7 5% 1/10W	
R310	1-216-864-11	METAL CHIP 0 5% 1/16W	
R312	1-216-824-11	METAL CHIP 1.8K 5% 1/16W	
R313	1-216-864-11	METAL CHIP 0 5% 1/16W	
R314	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV57E/TRV67E/TRV87E)
R315	1-216-847-11	METAL CHIP 150K 5% 1/16W	(TRV57E/TRV67E/TRV87E)
R321	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87E)
R322	1-216-864-11	METAL CHIP 0 5% 1/16W	
R323	1-216-864-11	METAL CHIP 0 5% 1/16W	
R324	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87E)
R325	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TRV87E)
R326	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TRV87E)
R327	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R328	1-216-817-11	METAL CHIP 470 5% 1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R329	1-216-833-91	RES-CHIP 10K 5% 1/16W	(TRV87E)
R331	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TRV87E)
R332	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R333	1-216-841-11	METAL CHIP 47K 5% 1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R334	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TRV87E)
R335	1-216-829-11	METAL CHIP 4.7K 5% 1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R336	1-216-825-11	METAL CHIP 2.2K 5% 1/16W	(TRV87E)
R337	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TRV87E)
R338	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TRV87E)
R339	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TRV87E)
R340	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R341	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R342	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	(TRV87E)
R343	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	(TRV87E)
R344	1-216-834-11	METAL CHIP 12K 5% 1/16W	
R345	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R346	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)

Ref. No.	Part No.	Description	Remarks
R347	1-216-838-11	METAL CHIP 27K 5% 1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R348	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R349	1-216-837-11	METAL CHIP 22K 5% 1/16W	
R350	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TRV87E)
R351	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TRV87E)
R352	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87E)
R353	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TRV87E)
R354	1-216-831-11	METAL CHIP 6.8K 5% 1/16W	(TRV87E)
R355	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87E)
R356	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TRV87E)
R357	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TRV87E)
R358	1-216-803-11	METAL CHIP 33 5% 1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R359	1-216-832-11	METAL CHIP 8.2K 5% 1/16W	(TRV87E)
R360	1-216-839-11	METAL CHIP 33K 5% 1/16W	(TRV87E)
R361	1-216-836-11	METAL CHIP 18K 5% 1/16W	(TRV87E)
R362	1-216-818-11	METAL CHIP 560 5% 1/16W	(TRV87E)
R363	1-216-833-91	RES-CHIP 10K 5% 1/16W	(TRV87E)
R364	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87E)
R365	1-216-864-11	METAL CHIP 0 5% 1/16W	(TRV87E)
		< SWITCH >	
S301	1-692-605-11	SWITCH, SLIDE (LIGHT ON/AUTO/OFF)	(TRV57E/TRV67E/TRV87E)
S302	1-771-331-51	SWITCH, PUSH (1 KEY) (CAMERA ON)	
S303	1-771-331-21	SWITCH, PUSH (1 KEY) (PLAYER ON)	

A-7074-141-A PD-117 (P-VLO) BOARD, COMPLETE
(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
****
(Ref.No.;10000Series)

Ref. No.	Part No.	Description	Remarks
		< CAPACITOR >	
C5501	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	
C5503	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5504	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5505	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C5506	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C5507	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C5508	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5509	1-107-687-11	TANTAL. CHIP 3.3uF 20% 20V	
C5510	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C5511	1-164-739-11	CERAMIC CHIP 560PF 5% 50V	

Ref. No.	Part No.	Description			Remarks
C5512	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5513	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5514	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C5515	1-164-357-11	CERAMIC CHIP	1000PF	5%	50V
C5516	1-164-217-11	CERAMIC CHIP	150PF	5%	50V
C5517	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C5518	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C5519	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C5520	1-113-994-11	TANTAL. CHIP	6.8uF	20%	16V
C5521	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C5522	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5523	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5524	1-107-682-11	CERAMIC CHIP	1uF	10%	16V
C5527	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C5529	1-107-725-11	CERAMIC CHIP	0.1uF	10%	16V
C5602	1-125-822-11	TANTALUM	10uF	20%	10V
C5603	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C5604	1-164-657-11	CERAMIC CHIP	0.015uF	10%	50V
C5605	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C5606	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
⚠C5607	1-131-959-91	CERAMIC CHIP	12PF	10%	3KV
C5608	1-125-822-11	TANTALUM	10uF	20%	10V
C5704	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
		< CONNECTOR >			
CN5501	1-573-364-11	CONNECTOR, FFC/FPC 24P			
* CN5502	1-573-984-11	CONNECTOR, BOARD TO BOARD 10P			
CN5604	1-764-709-11	CONNECTOR, FFC/FPC (LIF) 10P			
CN5701	1-779-893-11	PIN, CONNECTOR (PC BOARD) 8P			
CN5702	1-779-064-11	PIN, CONNECTOR (PC BOARD) 12P			
CN5703	1-573-346-21	CONNECTOR, FFC/FPC 6P			
CN5704	1-778-508-21	PIN, CONNECTOR (PC BOARD) 6P			
CN5705	1-794-050-21	CONNECTOR, FFC/FPC (ZIF) 26P			
		< DIODE >			
D5502	8-713-102-80	DIODE 1T369-01-T8A			
D5601	8-719-073-01	DIODE MA111-(K8).S0			
D5602	8-719-062-44	DIODE PG1112H-TR			
		< FERRITE BEAD >			
FB5502	1-414-760-21	INDUCTOR CHIP	0UH		
FB5503	1-414-760-21	INDUCTOR CHIP	0UH		
		< IC >			
IC5501	8-759-591-94	IC RB5P0030M1			
IC5502	8-759-591-93	IC CM7019L3-T4			
IC5601	8-759-564-49	IC TC7W53FU(TE12R)			
IC5602	8-759-075-70	IC TA75S393F-TE85R			
IC5701	8-759-573-02	IC BU9735K-E2			
		< COIL >			
L5501	1-469-525-91	INDUCTOR	10uH		
L5504	1-469-525-91	INDUCTOR	10uH		
L5505	1-412-956-21	INDUCTOR	27uH		
L5601	1-419-387-21	INDUCTOR	100uH		
		< TRANSISTOR >			
Q5501	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)		
Q5601	8-729-042-29	TRANSISTOR	RN1104F(TPL3)		
Q5602	8-729-039-43	TRANSISTOR	FP216-TL		
Q5603	8-729-042-29	TRANSISTOR	RN1104F(TPL3)		
Q5604	8-729-042-58	TRANSISTOR	RN2102F(TPL3)		
		< RESISTOR >			
R5501	1-216-853-11	METAL CHIP	470K	5%	1/16W
R5503	1-218-895-11	METAL CHIP	100K	0.5%	1/16W
R5504	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5505	1-216-835-11	METAL CHIP	15K	5%	1/16W
R5506	1-216-826-11	METAL CHIP	2.7K	5%	1/16W
R5507	1-216-841-11	METAL CHIP	47K	5%	1/16W
R5508	1-216-843-11	METAL CHIP	68K	5%	1/16W
R5509	1-216-837-11	METAL CHIP	22K	5%	1/16W
R5510	1-216-843-11	METAL CHIP	68K	5%	1/16W
R5511	1-216-857-11	METAL CHIP	1M	5%	1/16W
R5512	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5514	1-216-864-11	METAL CHIP	0	5%	1/16W
R5516	1-216-833-91	RES-CHIP	10K	5%	1/16W
R5517	1-216-849-11	METAL CHIP	220K	5%	1/16W
R5518	1-216-864-11	METAL CHIP	0	5%	1/16W
R5519	1-216-864-11	METAL CHIP	0	5%	1/16W
R5520	1-216-864-11	METAL CHIP	0	5%	1/16W
R5522	1-216-864-11	METAL CHIP	0	5%	1/16W
R5523	1-216-809-11	METAL CHIP	100	5%	1/16W
R5524	1-216-809-11	METAL CHIP	100	5%	1/16W
R5525	1-216-809-11	METAL CHIP	100	5%	1/16W
R5551	1-216-841-11	METAL CHIP	47K	5%	1/16W
R5553	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R5557	1-216-864-11	METAL CHIP	0	5%	1/16W
R5559	1-216-864-11	METAL CHIP	0	5%	1/16W
R5560	1-216-853-11	METAL CHIP	470K	5%	1/16W
R5566	1-216-864-11	METAL CHIP	0	5%	1/16W
R5567	1-216-864-11	METAL CHIP	0	5%	1/16W
R5568	1-216-864-11	METAL CHIP	0	5%	1/16W
R5608	1-216-864-11	METAL CHIP	0	5%	1/16W
R5609	1-216-833-91	RES-CHIP	10K	5%	1/16W
R5610	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R5611	1-216-845-11	METAL CHIP	100K	5%	1/16W
R5612	1-216-834-11	METAL CHIP	12K	5%	1/16W
R5613	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R5614	1-216-833-91	RES-CHIP	10K	5%	1/16W
R5616	1-216-810-11	METAL CHIP	120	5%	1/16W
R5617	1-216-837-11	METAL CHIP	22K	5%	1/16W
R5618	1-216-817-11	METAL CHIP	470	5%	1/16W
R5702	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R5704	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R5706	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R5707	1-216-828-11	METAL CHIP	3.9K	5%	1/16W
R5708	1-216-832-11	METAL CHIP	8.2K	5%	1/16W
R5711	1-216-809-11	METAL CHIP	100	5%	1/16W
R5712	1-216-855-11	METAL CHIP	680K	5%	1/16W
R5714	1-216-809-11	METAL CHIP	100	5%	1/16W

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

PD-117 PJ-99 PJ-100

Ref. No.	Part No.	Description	Remarks
		< SWITCH >	
S5701	1-692-088-41	SWITCH, TACTILE	
S5702	1-692-088-41	SWITCH, TACTILE	
S5703	1-692-088-41	SWITCH, TACTILE	
S5704	1-692-088-41	SWITCH, TACTILE	
		< TRANSFORMER >	
⚠T5601	1-435-226-11	TRANSFORMER, INVERTER	

Ref. No.	Part No.	Description	Remarks
	A-7074-136-A	PJ-99 (HXRIBO) BOARD, COMPLETE (TR918E)	
		***************************************	
	A-7074-158-A	PJ-99 (CO) BOARD, COMPLETE	(TR317E/TR417E/TR427E/TR617E)
		***************************************	
	A-7074-168-A	PJ-99 (HMMBO) BOARD, COMPLETE (TR717E)	
		***************************************	
			(Ref.No.;4000Series)
		< CAPACITOR >	
C101	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V	
C103	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C104	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR918E)
C105	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR918E)
C106	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TR918E)
		< CONNECTOR >	
CN101	1-779-330-21	CONNECTOR, FFC/FPC 12P	
		< DIODE >	
D101	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D102	8-719-073-03	DIODE MA8082-(K8).S0	(TR717E/TR918E)
D103	8-719-062-16	DIODE 01ZA8.2(TPL3)	(TR717E/TR918E)
D104	8-719-062-16	DIODE 01ZA8.2(TPL3)	(TR717E/TR918E)
D105	8-719-988-61	DIODE 1SS355TE-17	
		< JACK >	
J101	1-537-747-21	TERMINAL BOARD (A/V)	(TR918E)
J101	1-694-643-11	TERMINAL BOARD (A/V)	(TR717E)
J101	1-537-747-41	TERMINAL BOARD (A/V)	(TR317E/TR417E/TR427E/TR617E)
		< COIL >	
L101	1-216-295-91	SHORT 0 (Note)	
L102	1-412-963-11	INDUCTOR 100uH	
L103	1-412-963-11	INDUCTOR 100uH	(TR918E)
L104	1-412-963-11	INDUCTOR 100uH	(TR918E)
		< TRANSISTOR >	
Q101	8-729-101-07	TRANSISTOR 2SB798-T1-DLDK	
Q102	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
		< RESISTOR >	
R102	1-216-138-00	METAL CHIP 3.3 5% 1/8W	
R103	1-216-830-11	METAL CHIP 5.6K 5% 1/16W	
R104	1-216-820-11	METAL CHIP 820 5% 1/16W	
R105	1-216-836-11	METAL CHIP 18K 5% 1/16W	
R108	1-216-821-11	METAL CHIP 1K 5% 1/16W	(TR717E/TR918E)
R109	1-216-821-11	METAL CHIP 1K 5% 1/16W	
		< VARISTOR >	
VDR101	1-801-862-11	VARISTOR, CHIP	
VDR102	1-801-862-11	VARISTOR, CHIP	(TR918E)

Note : Resistor is mounted to the location where L101 is printed.

Ref. No.	Part No.	Description	Remarks
	A-7074-115-A	PJ-100 (N-VLO) BOARD, COMPLETE	(TRV47E/TRV57E:E,HK,AUS,CN,JE)
		***************************************	
	A-7074-122-A	PJ-100 (N-VHMMBO) BOARD, COMPLETE	(TRV67E:E,HK,AUS,CN,JE)
		***************************************	
	A-7074-128-A	PJ-100 (N-VHXRIBO) BOARD, COMPLETE	(TRV87E:E,HK,AUS,CN,JE)
		***************************************	
	A-7074-139-A	PJ-100 (P-VLO) BOARD, COMPLETE	(TRV37E/TRV48E/TRV57E:AEP,EE,NE,RU,UK)
		***************************************	
	A-7074-143-A	PJ-100 (P-VHMMBO) BOARD, COMPLETE	(TRV67E:AEP,EE,NE,RU,UK)
		***************************************	
	A-7074-146-A	PJ-100 (P-VHXRIBO) BOARD, COMPLETE	(TRV87E:AEP,EE,NE,RU,UK)
		***************************************	
			(Ref.No.;4000Series)
		< CAPACITOR >	
C101	1-110-569-11	TANTAL. CHIP 47uF 20% 6.3V	
C103	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV37E/TRV47E/TRV48E/TRV57E:AEP,EE,NE,RU,UK/ TRV67E:AEP,EE,NE,RU,UK/TRV87E:AEP,EE,NE,RU,UK)
C104	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV87E:AEP,EE,NE,RU,UK)
C105	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV87E:AEP,EE,NE,RU,UK)
C106	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV87E:AEP,EE,NE,RU,UK)
		< CONNECTOR >	
CN101	1-779-330-21	CONNECTOR, FFC/FPC 12P	
		< DIODE >	
D101	8-719-062-16	DIODE 01ZA8.2(TPL3)	
D102	8-719-073-03	DIODE MA8082-(K8).S0	(TRV67E/TRV87E)
D103	8-719-062-16	DIODE 01ZA8.2(TPL3)	(TRV67E/TRV87E)
D104	8-719-062-16	DIODE 01ZA8.2(TPL3)	(TRV67E/TRV87E)
D105	8-719-988-61	DIODE 1SS355TE-17	
		< JACK >	
J101	1-537-747-21	TERMINAL BOARD (A/V)	(TRV87E)
J101	1-537-747-41	TERMINAL BOARD (A/V)	(TRV37E/TRV47E/TRV48E/TRV57E)
J101	1-694-643-11	TERMINAL BOARD (A/V)	(TRV67E)

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Ref. No.	Part No.	Description			Remarks
		< COIL >			
L101	1-216-295-91	SHORT	0 (Note)		
L102	1-216-295-91	SHORT	0 (Note)		(TRV47E/TRV57E:E,HK,AUS,CN,JE/TRV67E:E,HK,AUS,CN,JE/TRV87E:E,HK,AUS,CN,JE)
L102	1-412-963-11	INDUCTOR	100uH		(TRV37E/TRV47E/TRV48E/TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK.0/TRV87E:AEP,EE,NE,RU,UK)
L103	1-216-295-91	SHORT	0 (Note)		(TRV87E:E,HK,AUS,CN,JE)
L103	1-412-963-11	INDUCTOR	100uH		(TRV87E:AEP,EE,NE,RU,UK)
L104	1-216-295-91	SHORT	0 (Note)		(TRV87E:E,HK,AUS,CN,JE)
L104	1-412-963-11	INDUCTOR	100uH		(TRV87E:AEP,EE,NE,RU,UK)
		< TRANSISTOR >			
Q101	8-729-101-07	TRANSISTOR	2SB798-T1-DLDK		
Q102	8-729-037-52	TRANSISTOR	2SD2216J-QR(K8).SO		
Q102	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)		
		< RESISTOR >			
R102	1-216-138-00	METAL CHIP	3.3	5%	1/8W
R103	1-216-830-11	METAL CHIP	5.6K	5%	1/16W
R104	1-216-820-11	METAL CHIP	820	5%	1/16W
R105	1-216-836-11	METAL CHIP	18K	5%	1/16W
R108	1-216-821-11	METAL CHIP	1K	5%	1/16W (TRV67E/TRV87E)
R109	1-216-821-11	METAL CHIP	1K	5%	1/16W
		< VARISTOR >			
VDR101	1-801-862-11	VARISTOR, CHIP			
VDR102	1-801-862-11	VARISTOR, CHIP (TRV87E)			

A-7074-137-A SE-100 (HXRIBO) BOARD, COMPLETE (TR617E/TR717E/TR918E)

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(Ref.No.;6000Series)

Ref. No.	Part No.	Description			Remarks
		< CAPACITOR >			
C451	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C452	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
C453	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C454	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C455	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C456	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C457	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C458	1-110-666-11	ELECT CHIP	22uF	20%	6.3V
C459	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V
C460	1-110-666-11	ELECT CHIP	22uF	20%	6.3V
C462	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V
C463	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C464	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
		< CONNECTOR >			
CN451	1-691-348-11	CONNECTOR, FFC/FPC (ZIF) 10P			

Note : Resistors are mounted to the location where L101,L102, L103, L104 are printed.

Ref. No.	Part No.	Description			Remarks
		< IC >			
IC451	8-759-489-19	IC uPC6756GR-8JG-E2			
		< COIL >			
L451	1-414-754-11	INDUCTOR	10uH		
		< RESISTOR >			
R451	1-216-837-11	METAL CHIP	22K	5%	1/16W
R452	1-216-837-11	METAL CHIP	22K	5%	1/16W
R453	1-216-837-11	METAL CHIP	22K	5%	1/16W
R454	1-216-837-11	METAL CHIP	22K	5%	1/16W
R455	1-216-857-11	METAL CHIP	1M	5%	1/16W
R456	1-216-833-91	RES-CHIP	10K	5%	1/16W
R457	1-216-833-91	RES-CHIP	10K	5%	1/16W
R458	1-216-857-11	METAL CHIP	1M	5%	1/16W
R460	1-216-835-11	METAL CHIP	15K	5%	1/16W
		< SENSOR >			
SE451	1-418-252-11	SENSOR, ANGULAR VELOCITY (PITCH)			
SE452	1-418-252-21	SENSOR, ANGULAR VELOCITY (YAW)			

A-7074-116-A SE-101 (N-VLO) BOARD, COMPLETE (TRV47E)

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A-7074-123-A SE-101 (N-VHMMBO) BOARD, COMPLETE (TRV57E:E,HK,AUS,CN,JE/TRV67E:E,HK,AUS,CN,JE)

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A-7074-129-A SE-101 (N-VHXRIBO) BOARD, COMPLETE (TRV87E:E,HK,AUS,CN,JE)

****

A-7074-140-A SE-101 (P-VLO) BOARD, COMPLETE (TRV37E/TRV48E)

****

A-7074-144-A SE-101 (P-VHMMBO) BOARD, COMPLETE (TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK)

****

A-7074-147-A SE-101 (P-VHXPIBO) BOARD, COMPLETE (TRV87E:AEP,EE,NE,RU,UK)

****

(Ref.No.;6000Series)

Ref. No.	Part No.	Description			Remarks
		< CAPACITOR >			
C451	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (TRV57E/TRV67E/TRV87E)
C452	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V (TRV57E/TRV67E/TRV87E)
C453	1-104-847-11	TANTAL. CHIP	22uF	20%	4V (TRV57E/TRV67E/TRV87E)
C454	1-104-847-11	TANTAL. CHIP	22uF	20%	4V (TRV57E/TRV67E/TRV87E)
C455	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V (TRV57E/TRV67E/TRV87E)
C456	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V (TRV57E/TRV67E/TRV87E)
C457	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V (TRV57E/TRV67E/TRV87E)
C458	1-110-666-11	ELECT CHIP	22uF	20%	6.3V (TRV57E/TRV67E/TRV87E)
C459	1-164-343-11	CERAMIC CHIP	0.056uF	10%	25V (TRV57E/TRV67E/TRV87E)
C460	1-110-666-11	ELECT CHIP	22uF	20%	6.3V (TRV57E/TRV67E/TRV87E)

Ref. No.	Part No.	Description	Remarks
C462	1-110-501-11	CERAMIC CHIP 0.33uF 10% 16V	(TRV57E/TRV67E/TRV87E)
C463	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	(TRV57E/TRV67E/TRV87E)
C464	1-127-688-21	TANTAL. CHIP 10uF 20% 6.3V	(TRV57E/TRV67E/TRV87E)
C465	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV87E:AEP,EE,NE,RU,UK)
C466	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	(TRV37E/TRV48E/TRV57E:AEP,EE,NE,RU,UK/ TRV67E:AEP,EE,NE,RU,UK/ TRV87E:AEP,EE,NE,RU,UK)
		< CONNECTOR >	
CN451	1-691-348-11	CONNECTOR, FFC/FPC (ZIF) 10P	
		< IC >	
IC451	8-759-489-19	IC uPC6756GR-8JG-E2	(TRV57E/TRV67E/TRV87E)
		< JACK >	
J451	1-695-514-21	JACK (SMALL TYPE) 1P	(TRV87E)
J451	1-695-514-11	JACK (SMALL TYPE) 1P	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
		< COIL >	
L451	1-414-754-11	INDUCTOR 10uH	(TRV57E/TRV67E/TRV87E)
L452	1-412-963-11	INDUCTOR 100uH	(TRV87E)
L453	1-412-963-11	INDUCTOR 100uH	(TRV37E/TRV48E/TRV57E:AEP,EE,NE,RU,UK/ TRV67E:AEP,EE,NE,RU,UK/ TRV87E:AEP,EE,NE,RU,UK)
L453	1-216-295-11	SHORT 0 (Note)	(TRV47E/TRV57E:E,HK,AUS,CN,JE/TRV67E:E,HK,AUS,CN,JE/ TRV87E:E,HK,AUS,CN,JE)
		< RESISTOR >	
R451	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV57E/TRV67E/TRV87E)
R452	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV57E/TRV67E/TRV87E)
R453	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV57E/TRV67E/TRV87E)
R454	1-216-837-11	METAL CHIP 22K 5% 1/16W	(TRV57E/TRV67E/TRV87E)
R455	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TRV57E/TRV67E/TRV87E)
R456	1-216-833-91	RES-CHIP 10K 5% 1/16W	(TRV57E/TRV67E/TRV87E)
R457	1-216-833-91	RES-CHIP 10K 5% 1/16W	(TRV57E/TRV67E/TRV87E)
R458	1-216-857-11	METAL CHIP 1M 5% 1/16W	(TRV57E/TRV67E/TRV87E)
R460	1-216-835-11	METAL CHIP 15K 5% 1/16W	(TRV57E/TRV67E/TRV87E)
R461	1-216-864-11	METAL CHIP 0 5% 1/16W	
		< SENSOR >	
SE451	1-418-252-11	SENSOR, ANGULAR VELOCITY (PITCH)	(TRV57E/TRV67E/TRV87E)
SE452	1-418-252-21	SENSOR, ANGULAR VELOCITY (YAW)	(TRV57E/TRV67E/TRV87E)

Note : Resistor is mounted to the location where L453 is printed.

Ref. No.	Part No.	Description	Remarks
		< VARISTOR >	
VDR451	1-801-862-11	VARISTOR, CHIP (TRV87E)	
VDR452	1-801-862-11	VARISTOR, CHIP	

Ref. No.	Part No.	Description	Remarks
	A-7094-704-A	VC-234 (P-LO) BOARD, COMPLETE	(TR317E/TR417E/TR427E)
	A-7094-705-A	VC-234 (P-HMMBO) BOARD, COMPLETE	(TR717E)
	A-7094-706-A	VC-234 (P-HXIBO) BOARD, COMPLETE	(TR918E)
	A-7094-708-A	VC-234 (P-VLO) BOARD, COMPLETE	(TRV37E/TRV47E/TRV48E)
	A-7094-709-A	VC-234 (P-VHMMBO) BOARD, COMPLETE	(TRV67E)
	A-7094-710-A	VC-234 (P-VHXRIBO) BOARD, COMPLETE	(TRV87E)
	A-7094-807-A	VC-234 (P-MMBO) BOARD, COMPLETE	(TR617E)
	A-7094-808-A	VC-234 (P-VHMBO) BOARD, COMPLETE	(TRV57E)
			(Ref.No.;1000Series)
		< CAPACITOR >	
C101	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C102	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C103	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C105	1-119-661-11	TANTAL. CHIP 33uF 20% 6.3V	
C106	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C107	1-164-227-11	CERAMIC CHIP 0.022uF 10% 25V	
C108	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C109	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C110	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C111	1-164-217-11	CERAMIC CHIP 150PF 5% 50V	
C112	1-162-926-11	CERAMIC CHIP 82PF 5% 50V	
C113	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C114	1-107-826-91	CERAMIC CHIP 0.1uF 10% 16V	
C115	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C116	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C117	1-162-927-11	CERAMIC CHIP 100PF 5% 50V	
C118	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C119	1-125-822-11	TANTALUM 10uF 20% 10V	
C121	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C123	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C125	1-164-156-11	CERAMIC CHIP 0.1uF 25V	
C128	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C130	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C131	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C133	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C134	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C135	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
C136	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	
C137	1-162-968-11	CERAMIC CHIP 0.0047uF 10% 50V	
C138	1-162-970-11	CERAMIC CHIP 0.01uF 10% 25V	

Ref. No.	Part No.	Description			Remarks
C139	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C141	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C142	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C146	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C202	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V
C203	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C206	1-164-392-11	CERAMIC CHIP	390PF	5%	50V
C207	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C210	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C211	1-119-660-11	TANTAL. CHIP	4.7uF	20%	6.3V
C212	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C213	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C216	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C217	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C218	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C219	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C220	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C221	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C222	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C223	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C224	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C225	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C226	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C227	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C228	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C231	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C232	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V
C233	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C234	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C236	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C237	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C239	1-104-851-11	TANTAL. CHIP	10uF	20%	4V
C240	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C241	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C243	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C244	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C245	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C246	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C247	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C249	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C250	1-162-916-11	CERAMIC CHIP	12PF	5%	50V
C253	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C254	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V (TR918E/TRV87E)
C255	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TR918E/TRV87E)
C256	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C257	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TR918E/TRV87E)
C258	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TR918E/TRV87E)
C259	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C260	1-104-851-11	TANTAL. CHIP	10uF	20%	4V
C262	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C263	1-104-851-11	TANTAL. CHIP	10uF	20%	4V
C264	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C265	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C266	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C291	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V

Ref. No.	Part No.	Description			Remarks
C292	1-119-750-11	TANTAL. CHIP	22uF	20%	6.3V
C293	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C401	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C402	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C403	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C404	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C405	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C406	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C407	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C408	1-119-660-11	TANTAL. CHIP	4.7uF	20%	6.3V
C409	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C410	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C411	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C412	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C413	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C414	1-162-960-11	CERAMIC CHIP	220PF	10%	50V
C415	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C416	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C417	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C418	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C419	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C420	1-109-982-11	CERAMIC CHIP	1uF	10%	10V
C421	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C422	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C423	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C424	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C425	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C427	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C428	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C429	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V
C430	1-164-505-11	CERAMIC CHIP	2.2uF		16V
C431	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C433	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C434	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C435	1-164-315-11	CERAMIC CHIP	470PF	2.00%	50V
C436	1-164-315-11	CERAMIC CHIP	470PF	2.00%	50V
C501	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C502	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C503	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C504	1-115-156-11	CERAMIC CHIP	1uF		10V
C505	1-115-156-11	CERAMIC CHIP	1uF		10V
C506	1-135-214-21	TANTAL. CHIP	4.7uF	20%	20V
C507	1-104-851-11	TANTAL. CHIP	10uF	20%	4V
C508	1-115-156-11	CERAMIC CHIP	1uF		10V
C509	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C511	1-104-329-11	CERAMIC CHIP	0.1uF	10%	50V
C512	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C513	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C514	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C515	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C516	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C517	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C518	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C519	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V
C520	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C521	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C522	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C523	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C524	1-104-847-11	TANTAL. CHIP	22uF	20%	4V
C525	1-115-156-11	CERAMIC CHIP	1uF		10V (TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)

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Ref. No.	Part No.	Description				Remarks
C526	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V	(TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
C527	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	
C552	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C554	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V	
C556	1-125-822-11	TANTALUM	10uF	20%	10V	
C559	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	
C560	1-162-962-11	CERAMIC CHIP	470PF	10%	50V	
C561	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C562	1-164-489-11	CERAMIC CHIP	0.22uF	10%	16V	
C563	1-119-661-11	TANTAL. CHIP	33uF	20%	6.3V	
C564	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C565	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C566	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C568	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	
C569	1-115-156-11	CERAMIC CHIP	1uF		10V	
C570	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C571	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V	
C572	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V	
C573	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	
C641	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	
C644	1-127-760-91	CERAMIC CHIP	4.7uF	10%	6.3V	
C645	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C646	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	
C647	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	(TRV87E)
C648	1-164-677-11	CERAMIC CHIP	0.033uF	10%	16V	
C649	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	
C650	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR717E/TR918E/TRV67E/TRV87E)
C651	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	
C652	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	(TR717E/TR918E/TRV67E/TRV87E)
C653	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C654	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C655	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	
C656	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	
C657	1-110-501-11	CERAMIC CHIP	0.33uF	10%	16V	(TRV87E)
C658	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	
C659	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V	(TRV87E)
C660	1-162-928-11	CERAMIC CHIP	120PF	5%	50V	(TRV87E)
C661	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	(TRV87E)
C663	1-162-927-11	CERAMIC CHIP	100PF	5%	50V	(TRV87E)
C664	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TRV87E)
C665	1-162-919-11	CERAMIC CHIP	22PF	5%	50V	(TRV87E)
C667	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V	
C668	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	
C669	1-135-149-21	TANTALUM CHIP	2.2uF	20%	10V	(TR717E/TR918E/TRV67E/TRV87E)
C671	1-126-246-11	ELECT CHIP	220uF	20%	4V	
C672	1-126-246-11	ELECT CHIP	220uF	20%	4V	(TR717E/TR918E/TRV67E/TRV87E)
C673	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TR717E/TR918E/TRV67E/TRV87E)
C701	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	
C702	1-135-259-11	TANTAL. CHIP	10uF	20%	6.3V	
C705	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	
C706	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V	
C707	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C708	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	
C709	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C710	1-110-569-11	TANTAL. CHIP	47uF	20%	6.3V	(TRV87E)
C711	1-104-851-11	TANTAL. CHIP	10uF	20%	4V	
C712	1-104-851-11	TANTAL. CHIP	10uF	20%	4V	(TR918E/TRV87E)
C713	1-107-823-11	CERAMIC CHIP	0.47uF	10%	16V	
C714	1-119-661-11	TANTAL. CHIP	33uF	20%	6.3V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C715	1-135-180-21	TANTALUM CHIP	3.3uF	20%	6.3V	
C716	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C717	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	(TR918E/TRV87E)
C718	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C719	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	(TR918E/TRV87E)
C720	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C721	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V	
C722	1-104-847-11	TANTAL. CHIP	22uF	20%	4V	
C723	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	
C724	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	(TR918E/TRV87E)
C725	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	(TR918E/TRV87E)
C726	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	(TR918E/TRV87E)
C727	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	(TR918E/TRV87E)
C728	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	
C729	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	
C730	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	(TR918E/TRV87E)
C731	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V	
C732	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	
C733	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	
C734	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	
C735	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V	(TR918E/TRV87E)
C736	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	(TR918E/TRV87E)
C737	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V	
C738	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	
C739	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V	(TR918E/TRV87E)
C740	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V	

Ref. No.	Part No.	Description			Remarks
C741	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C742	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C743	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V (TR918E/TRV87E)
C744	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C745	1-162-925-11	CERAMIC CHIP	68PF	5%	50V
C746	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C747	1-115-467-11	CERAMIC CHIP	0.22uF	10%	10V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C753	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TR918E/TRV87E)
C754	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V (TR918E/TRV87E)
C755	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V (TR918E/TRV87E)
C756	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TR918E/TRV87E)
C757	1-135-177-21	TANTALUM CHIP	1uF	20%	20V (TR918E/TRV87E)
C758	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TR918E/TRV87E)
C759	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TR918E/TRV87E)
C760	1-119-660-11	TANTAL. CHIP	4.7uF	20%	6.3V (TR918E/TRV87E)
C761	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TR918E/TRV87E)
C762	1-164-668-11	CERAMIC CHIP	510PF	5%	50V (TR918E/TRV87E)
C763	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TR918E/TRV87E)
C764	1-127-688-21	TANTAL. CHIP	10uF	20%	6.3V (TR918E/TRV87E)
C765	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TR918E/TRV87E)
C766	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TR918E/TRV87E)
C767	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TR918E/TRV87E)
C768	1-162-913-11	CERAMIC CHIP	8PF	0.50PF	50V (TR918E/TRV87E)
C769	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V (TR918E/TRV87E)
C770	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V (TR918E/TRV87E)
C771	1-162-921-11	CERAMIC CHIP	33PF	5%	50V (TR918E/TRV87E)
C772	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TR918E/TRV87E)
C773	1-162-922-11	CERAMIC CHIP	39PF	5%	50V (TR918E/TRV87E)
C774	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TR918E/TRV87E)
C775	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V (TR918E/TRV87E)
C777	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TR918E/TRV87E)
C778	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TR918E/TRV87E)
C781	1-104-847-11	TANTAL. CHIP	22uF	20%	4V (TR918E/TRV87E)
C782	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V (TR918E/TRV87E)
C801	1-115-156-11	CERAMIC CHIP	1uF		10V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C802	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C803	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C804	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C805	1-162-638-11	CERAMIC CHIP	1uF		16V
C806	1-119-749-11	TANTAL. CHIP	33uF	20%	4V
C807	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C809	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C810	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C811	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C813	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C814	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C815	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C817	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C818	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C819	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C820	1-162-969-11	CERAMIC CHIP	0.0068uF	10%	25V
C821	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C822	1-162-917-11	CERAMIC CHIP	15PF	5%	50V
C823	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C824	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C825	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C826	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C901	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C902	1-125-837-91	CERAMIC CHIP	1uF	10%	6.3V
C903	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C904	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C907	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C908	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C909	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C910	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C911	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C912	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C913	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C914	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C915	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C971	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C972	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
C973	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
C974	1-107-826-91	CERAMIC CHIP	0.1uF	10%	16V
		< CONNECTOR >			
CN101	1-766-346-21	CONNECTOR, FFC/FPC 16P			
CN151	1-766-644-21	CONNECTOR, FFC/FPC 8P			(TR717E/TR918E/TRV57E/TRV67E/TRV87E)
CN501	1-779-331-11	CONNECTOR, FFC/FPC 14P			
CN551	1-691-362-11	CONNECTOR, FFC/FPC (ZIF) 24P			
CN973	1-766-340-21	CONNECTOR, FFC/FPC 10P			(TR717E/TR918E/TRV57E/TRV67E/TRV87E)
CN971	1-766-352-21	CONNECTOR, FFC/FPC 22P			
CN972	1-766-350-21	CONNECTOR, FFC/FPC 20P			
CN973	1-774-635-21	CONNECTOR, FFC/FPC 10P			(TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)
CN974	1-766-644-21	CONNECTOR, FFC/FPC 8P			
CN975	1-785-760-11	CONNECTOR, FFC/FPC (ZIF) 45P			
CN976	1-766-340-21	CONNECTOR, FFC/FPC 10P			
CN977	1-774-631-21	CONNECTOR, FFC/FPC 6P (TR918E/TRV87E)			
CN978	1-766-342-21	CONNECTOR, FFC/FPC 12P			
CN979	1-766-345-21	CONNECTOR, FFC/FPC 15P			
CN980	1-766-346-21	CONNECTOR, FFC/FPC 16P			

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Ref. No.	Part No.	Description	Remarks
CN981	1-691-542-21	CONNECTOR, BOARD TO BOARD 48P	
CN982	1-766-346-21	CONNECTOR, FFC/FPC 16P	
		< DIODE >	
D201	8-719-055-86	DIODE KV1470TL1-3	
D202	8-719-055-86	DIODE KV1470TL1-3	
D203	8-719-027-76	DIODE 1SS357-TPH3	(TR918E/TRV87E)
D401	8-719-075-12	DIODE MA3XD21001S0	
D501	8-713-103-84	DIODE 1T379-01-T8A	
D502	8-719-073-01	DIODE MA111-TX	(TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
D551	8-719-073-01	DIODE MA111-(K8).S0	
D801	8-719-073-01	DIODE MA111-(K8).S0	
D802	8-719-073-01	DIODE MA111-(K8).S0	
D803	8-719-073-01	DIODE MA111-(K8).S0	
D804	8-719-073-01	DIODE MA111-(K8).S0	
D971	8-719-073-03	DIODE MA8082-(K8).S0	(TR717E/TR918E/TRV57E/TRV67E/TRV87E)
D972	8-719-062-16	DIODE 01ZA8.2(TPL3)	(TR717E/TR918E/TRV57E/TRV67E/TRV87E)
D973	8-719-073-03	DIODE MA8082-(K8).S0	(TR918E/TRV87E)
		< FERRITE BEAD >	
FB101	1-414-228-11	INDUCTOR CHIP 0UH	
FB102	1-414-228-11	INDUCTOR CHIP 0UH	
FB201	1-414-760-21	FERRITE 0UH	
FB202	1-414-760-21	FERRITE 0UH	(TR918E/TRV87E)
FB203	1-414-760-21	FERRITE 0UH	
FB204	1-414-760-21	FERRITE 0UH	
FB205	1-414-760-21	FERRITE 0UH	
FB206	1-414-760-21	FERRITE 0UH	(TR918E/TRV87E)
FB207	1-414-760-21	FERRITE 0UH	
FB291	1-414-760-21	FERRITE 0UH	
FB501	1-414-760-21	FERRITE 0UH	
FB503	1-500-284-21	INDUCTOR CHIP 0UH	
FB504	1-414-760-21	FERRITE 0UH	
FB506	1-414-760-21	FERRITE 0UH	(TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
FB507	1-216-864-11	METAL CHIP 0 5% 1/16W	(Note)
FB508	1-216-864-11	METAL CHIP 0 5% 1/16W	(Note)
FB641	1-414-760-21	FERRITE 0UH	
FB801	1-414-760-21	FERRITE 0UH	
FB901	1-414-760-21	FERRITE 0UH	
		< IC >	
IC101	8-752-093-69	IC CXA3265R-T4	
IC201	8-759-599-07	IC HG75C012FFL	
IC202	8-759-579-44	IC MB90097PFV-G-118-BND-ER	(TR918E/TRV87E)
IC202	8-759-647-02	IC BU2995-07FV-E2	(TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
IC203	8-752-403-45	IC CXD1450R-T6	(TR918E/TRV87E)
IC204	8-759-058-58	IC TC7S04FU(TE85R)	(TRV87E:E,AUS,HK,CN,JE)
IC205	8-759-058-60	IC TC7SU04FU(TE85R)	
IC291	8-759-536-93	IC M62371GP-600D	
IC401	8-759-640-85	IC CXA8096R-TBM	
IC501	8-752-386-72	IC CXD2444R-T4	
IC502	8-759-638-66	IC AD80013JSTRL	
IC551	8-759-637-96	IC uPD16877MA-6A5-E2	
IC552	8-759-444-87	IC NJM324V(TE2)	
IC641	8-759-599-37	IC AN2225FHQ-EB	
IC701	8-752-093-72	IC CXA3284R-T6	(TR918E/TRV87E)
IC701	8-752-093-74	IC CXA3285R-T6	(TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
IC751	8-759-566-96	IC AN2920FHQ-EB	(TR918E/TRV87E)
IC801	8-759-424-79	IC S-8423YFS-T2	
IC802	8-759-642-45	IC TL1596CPWR	
IC803	8-759-669-16	IC S579623PZ-TEB	
IC901	8-759-640-87	IC BR9016RFV-E2	
IC902	8-759-665-32	IC MB91192PFF-G-108-BND-ER	
		< COIL >	
L101	1-414-406-41	INDUCTOR 220uH	
L102	1-412-952-11	INDUCTOR 12uH	
L103	1-469-526-91	INDUCTOR 22uH	
L104	1-414-406-41	INDUCTOR 220uH	
L203	1-469-525-91	INDUCTOR 10uH	
L204	1-469-525-91	INDUCTOR 10uH	
L205	1-469-525-91	INDUCTOR 10uH	
L206	1-469-525-91	INDUCTOR 10uH	
L208	1-469-525-91	INDUCTOR 10uH	
L209	1-412-945-11	INDUCTOR 3.3uH	
L291	1-469-525-91	INDUCTOR 10uH	
L501	1-414-398-11	INDUCTOR 10uH	
L551	1-414-398-11	INDUCTOR 10uH	
L552	1-469-525-91	INDUCTOR 10uH	
L553	1-469-525-91	INDUCTOR 10uH	
L641	1-469-525-91	INDUCTOR 10uH	
L642	1-469-525-91	INDUCTOR 10uH	
L643	1-412-937-11	INDUCTOR 0.68uH	(TRV87E)
L644	1-469-525-91	INDUCTOR 10uH	
L751	1-412-948-11	INDUCTOR 5.6uH	(TR918E/TRV87E)
L752	1-412-957-11	INDUCTOR 33uH	(TR918E/TRV87E)
L753	1-412-957-11	INDUCTOR 33uH	(TR918E/TRV87E)
L754	1-469-525-91	INDUCTOR 10uH	(TR918E/TRV87E)
		< TRANSISTOR >	
Q101	8-729-047-19	TRANSISTOR 2SA1965-S-TL	
Q102	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q103	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q104	8-729-037-52	TRANSISTOR 2SC4738F-Y/GR(TPL3)	
Q105	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q106	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q112	8-729-037-61	TRANSISTOR RN2104F(TPL3)	
Q113	8-729-042-29	TRANSISTOR RN1104F(TPL3)	
Q203	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	
Q204	8-729-037-53	TRANSISTOR 2SA1832F-Y/GR(TPL3)	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)

Note : Resistors are mounted to the location where FB507,FB508 are printed.

Ref. No.	Part No.	Description				Remarks
Q205	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)			(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
Q206	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)			(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
Q208	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)			
Q211	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)			
Q213	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)			(TR918E/TRV87E)
Q214	8-729-042-29	TRANSISTOR	RN1104F(TPL3)			(TRV87E)
Q401	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)			
Q551	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)			
Q552	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)			
Q553	8-729-037-53	TRANSISTOR	2SA1832F-Y/GR(TPL3)			
Q554	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)			
Q701	8-729-045-78	TRANSISTOR	RN1110F(TPL3)			(TRV87E)
Q703	8-729-045-78	TRANSISTOR	RN1110F(TPL3)			(TR918E/TRV87E)
Q704	8-729-045-78	TRANSISTOR	RN1110F(TPL3)			(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
Q706	8-729-045-78	TRANSISTOR	RN1110F(TPL3)			
Q707	8-729-037-63	TRANSISTOR	UN9115J-(K8).SO			
Q712	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)			(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
Q713	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)			(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
Q801	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)			(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
Q802	8-729-037-52	TRANSISTOR	2SC4738F-Y/GR(TPL3)			(TR918E/TRV87E)
Q803	8-729-042-29	TRANSISTOR	RN1104F(TPL3)			
Q804	8-729-041-43	TRANSISTOR	HN1L02FU(TE85R)			
Q805	8-729-042-29	TRANSISTOR	RN1104F(TPL3)			(TR918E/TRV87E)
Q806	8-729-042-58	TRANSISTOR	RN2102F(TPL3)			
Q974	8-729-042-29	TRANSISTOR	RN1104F(TPL3)			(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
Q975	8-729-041-23	TRANSISTOR	NDS356AP			(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
		< RESISTOR >				
R101	1-216-804-11	METAL CHIP	39	5%	1/16W	
R102	1-216-818-11	METAL CHIP	560	5%	1/16W	
R103	1-216-864-11	METAL CHIP	0	5%	1/16W	
R104	1-216-864-11	METAL CHIP	0	5%	1/16W	
R105	1-216-809-11	METAL CHIP	100	5%	1/16W	
R106	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R107	1-216-838-11	METAL CHIP	27K	5%	1/16W	
R108	1-216-813-11	METAL CHIP	220	5%	1/16W	
R109	1-216-813-11	METAL CHIP	220	5%	1/16W	
R110	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R111	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	
R112	1-216-814-11	METAL CHIP	270	5%	1/16W	
R113	1-216-813-11	METAL CHIP	220	5%	1/16W	
R114	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R115	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R116	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R117	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R120	1-218-899-11	METAL CHIP	150K	0.5%	1/16W	
R121	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R122	1-216-837-11	METAL CHIP	22K	5%	1/16W	
R127	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R128	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R133	1-216-839-11	METAL CHIP	33K	5%	1/16W	
R135	1-216-833-91	RES-CHIP	10K	5%	1/16W	
R155	1-216-864-11	METAL CHIP	0	5%	1/16W	
R201	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R202	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR918E/TRV87E)
R203	1-216-295-91	SHORT	0			
R204	1-216-833-91	RES-CHIP	10K	5%	1/16W	
R205	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R206	1-216-864-11	METAL CHIP	0	5%	1/16W	
R208	1-216-833-91	RES-CHIP	10K	5%	1/16W	
R209	1-216-822-11	METAL CHIP	1.2K	5%	1/16W	
R210	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R211	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R212	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R214	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	
R222	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR918E/TRV87E)
R223	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R224	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R225	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R226	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	
R228	1-216-817-11	METAL CHIP	470	5%	1/16W	
R229	1-216-809-11	METAL CHIP	100	5%	1/16W	
R230	1-216-840-11	METAL CHIP	39K	5%	1/16W	
R231	1-216-820-11	METAL CHIP	820	5%	1/16W	
R232	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	
R233	1-216-832-11	METAL CHIP	8.2K	5%	1/16W	
R234	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R235	1-216-817-11	METAL CHIP	470	5%	1/16W	
R236	1-216-813-11	METAL CHIP	220	5%	1/16W	
R237	1-216-830-11	METAL CHIP	5.6K	5%	1/16W	
R238	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R239	1-216-814-11	METAL CHIP	270	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R240	1-216-814-11	METAL CHIP	270	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R241	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R242	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R243	1-216-814-11	METAL CHIP	270	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R245	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R246	1-216-833-91	RES-CHIP	10K	5%	1/16W	
R247	1-216-817-11	METAL CHIP	470	5%	1/16W	
R249	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R250	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R252	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R253	1-216-835-11	METAL CHIP	15K	5%	1/16W	
R254	1-216-864-11	METAL CHIP	0	5%	1/16W	
R256	1-216-834-11	METAL CHIP	12K	5%	1/16W	
R257	1-216-817-11	METAL CHIP	470	5%	1/16W	
R258	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R259	1-216-833-91	RES-CHIP	10K	5%	1/16W	

Ref. No.	Part No.	Description			Remarks
R260	1-216-841-11	METAL CHIP	47K	5%	1/16W (TRV87E)
R261	1-216-864-11	METAL CHIP	0	5%	1/16W (TR918E/TRV87E)
R262	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R263	1-216-841-11	METAL CHIP	47K	5%	1/16W (TRV87E)
R264	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R265	1-216-829-11	METAL CHIP	4.7K	5%	1/16W (TR918E/TRV87E)
R266	1-216-841-11	METAL CHIP	47K	5%	1/16W (TR918E/TRV87E)
R271	1-216-864-11	METAL CHIP	0	5%	1/16W (TR918E/TRV87E)
R273	1-216-857-11	METAL CHIP	1M	5%	1/16W (TRV87E)
R274	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R276	1-216-864-11	METAL CHIP	0	5%	1/16W
R278	1-216-864-11	METAL CHIP	0	5%	1/16W
R279	1-216-864-11	METAL CHIP	0	5%	1/16W
R280	1-216-864-11	METAL CHIP	0	5%	1/16W
R281	1-216-821-11	METAL CHIP	1K	5%	1/16W
R283	1-216-864-11	METAL CHIP	0	5%	1/16W
R401	1-216-841-11	METAL CHIP	47K	5%	1/16W
R402	1-216-851-11	METAL CHIP	330K	5%	1/16W
R403	1-216-845-11	METAL CHIP	100K	5%	1/16W
R404	1-216-845-11	METAL CHIP	100K	5%	1/16W
R405	1-216-845-11	METAL CHIP	100K	5%	1/16W
R406	1-216-845-11	METAL CHIP	100K	5%	1/16W
R407	1-216-817-11	METAL CHIP	470	5%	1/16W
R408	1-217-671-11	METAL CHIP	1	5%	1/10W
R409	1-217-671-11	METAL CHIP	1	5%	1/10W
R410	1-217-671-11	METAL CHIP	1	5%	1/10W
R411	1-216-023-00	METAL CHIP	82	5%	1/10W
R413	1-216-864-11	METAL CHIP	0	5%	1/16W
R414	1-216-817-11	METAL CHIP	470	5%	1/16W
R416	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R423	1-216-833-91	RES-CHIP	10K	5%	1/16W
R424	1-216-841-11	METAL CHIP	47K	5%	1/16W
R425	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R426	1-216-845-11	METAL CHIP	100K	5%	1/16W
R427	1-216-833-91	RES-CHIP	10K	5%	1/16W
R428	1-217-671-11	METAL CHIP	1	5%	1/10W
R429	1-217-671-11	METAL CHIP	1	5%	1/10W
R430	1-216-841-11	METAL CHIP	47K	5%	1/16W
R431	1-216-864-11	METAL CHIP	0	5%	1/16W
R432	1-216-841-11	METAL CHIP	47K	5%	1/16W
R433	1-216-864-11	METAL CHIP	0	5%	1/16W
R434	1-216-833-91	RES-CHIP	10K	5%	1/16W
R435	1-216-833-91	RES-CHIP	10K	5%	1/16W
R436	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R501	1-216-864-11	METAL CHIP	0	5%	1/16W
R502	1-216-864-11	METAL CHIP	0	5%	1/16W
R503	1-216-845-11	METAL CHIP	100K	5%	1/16W
R504	1-216-814-11	METAL CHIP	270	5%	1/16W
R505	1-216-809-11	METAL CHIP	100	5%	1/16W
R506	1-216-812-11	METAL CHIP	180	5%	1/16W
R509	1-216-857-11	METAL CHIP	1M	5%	1/16W
R512	1-216-853-11	METAL CHIP	470K	5%	1/16W
R515	1-216-841-11	METAL CHIP	47K	5%	1/16W
R516	1-216-841-11	METAL CHIP	47K	5%	1/16W
R517	1-216-841-11	METAL CHIP	47K	5%	1/16W
R518	1-216-864-11	METAL CHIP	0	5%	1/16W (TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)
R519	1-216-845-11	METAL CHIP	100K	5%	1/16W (TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
R551	1-216-841-11	METAL CHIP	47K	5%	1/16W
R552	1-216-821-11	METAL CHIP	1K	5%	1/16W
R553	1-216-295-91	SHORT	0		
R555	1-216-843-11	METAL CHIP	68K	5%	1/16W
R556	1-216-821-11	METAL CHIP	1K	5%	1/16W
R557	1-216-843-11	METAL CHIP	68K	5%	1/16W
R558	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R559	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R560	1-216-797-11	METAL CHIP	10	5%	1/16W
R561	1-216-857-11	METAL CHIP	1M	5%	1/16W
R562	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R563	1-216-833-91	RES-CHIP	10K	5%	1/16W
R564	1-216-849-11	METAL CHIP	220K	5%	1/16W
R565	1-216-853-11	METAL CHIP	470K	5%	1/16W
R566	1-216-853-11	METAL CHIP	470K	5%	1/16W
R567	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R568	1-216-835-11	METAL CHIP	15K	5%	1/16W
R569	1-216-837-11	METAL CHIP	22K	5%	1/16W
R570	1-216-853-11	METAL CHIP	470K	5%	1/16W
R571	1-216-821-11	METAL CHIP	1K	5%	1/16W
R572	1-216-821-11	METAL CHIP	1K	5%	1/16W
R573	1-216-815-11	METAL CHIP	330	5%	1/16W
R574	1-216-837-11	METAL CHIP	22K	5%	1/16W
R575	1-216-821-11	METAL CHIP	1K	5%	1/16W
R576	1-216-833-91	RES-CHIP	10K	5%	1/16W
R577	1-216-841-11	METAL CHIP	47K	5%	1/16W
R644	1-216-804-11	METAL CHIP	39	5%	1/16W (TR717E/TR918E/TRV67E/TRV87E)
R645	1-216-803-11	METAL CHIP	33	5%	1/16W (TR717E/TR918E/TRV67E/TRV87E)
R646	1-216-804-11	METAL CHIP	39	5%	1/16W (TR717E/TR918E/TRV67E/TRV87E)
R647	1-216-803-11	METAL CHIP	33	5%	1/16W (TR717E/TR918E/TRV67E/TRV87E)
R648	1-216-804-11	METAL CHIP	39	5%	1/16W
R649	1-216-803-11	METAL CHIP	33	5%	1/16W
R650	1-218-847-11	METAL CHIP	1K	0.5%	1/16W
R651	1-218-879-11	METAL CHIP	22K	0.5%	1/16W
R652	1-218-876-11	METAL CHIP	16K	0.5%	1/16W
R653	1-216-837-11	METAL CHIP	22K	5%	1/16W (TRV87E)
R655	1-216-821-11	METAL CHIP	1K	5%	1/16W
R656	1-216-821-11	METAL CHIP	1K	5%	1/16W (TR717E/TR918E/TRV67E/TRV87E)

Ref. No.	Part No.	Description				Remarks
R657	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TR717E/TR918E/TRV67E/TRV87E)
R658	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R703	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R704	1-216-833-91	RES-CHIP	10K	5%	1/16W	
R705	1-216-809-11	METAL CHIP	100	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R706	1-216-809-11	METAL CHIP	100	5%	1/16W	(TRV87E)
R707	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TR918E/TRV87E)
R708	1-216-833-91	RES-CHIP	10K	5%	1/16W	(TR918E/TRV87E)
R710	1-216-836-11	METAL CHIP	18K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R711	1-216-849-11	METAL CHIP	220K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R712	1-216-847-11	METAL CHIP	150K	5%	1/16W	
R713	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R714	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R715	1-216-853-11	METAL CHIP	470K	5%	1/16W	(TR918E/TRV87E)
R716	1-216-864-11	METAL CHIP	0	5%	1/16W	
R717	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR918E/TRV87E)
R719	1-216-864-11	METAL CHIP	0	5%	1/16W	
R720	1-216-820-11	METAL CHIP	820	5%	1/16W	
R721	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R722	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TR918E/TRV87E)
R723	1-216-864-11	METAL CHIP	0	5%	1/16W	
R724	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR918E/TRV87E)
R725	1-216-833-91	RES-CHIP	10K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R726	1-216-833-91	RES-CHIP	10K	5%	1/16W	(TRV87E)
R728	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R729	1-216-833-91	RES-CHIP	10K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R730	1-216-833-91	RES-CHIP	10K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R731	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R755	1-216-836-11	METAL CHIP	18K	5%	1/16W	(TR918E/TRV87E)
R756	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	(TR918E/TRV87E)
R757	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	(TR918E/TRV87E)
R760	1-216-835-11	METAL CHIP	15K	5%	1/16W	(TR918E/TRV87E)
R761	1-216-857-11	METAL CHIP	1M	5%	1/16W	(TR918E/TRV87E)
R763	1-218-879-11	METAL CHIP	22K	0.5%	1/16W	(TR918E/TRV87E)
R764	1-216-815-11	METAL CHIP	330	5%	1/16W	(TR918E/TRV87E)
R765	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TR918E/TRV87E)
R766	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR918E/TRV87E)
R767	1-216-819-11	METAL CHIP	680	5%	1/16W	(TR918E/TRV87E)
R768	1-216-847-11	METAL CHIP	150K	5%	1/16W	(TR918E/TRV87E)
R770	1-216-847-11	METAL CHIP	150K	5%	1/16W	(TR918E/TRV87E)
R771	1-216-818-11	METAL CHIP	560	5%	1/16W	(TR918E/TRV87E)
R772	1-216-831-11	METAL CHIP	6.8K	5%	1/16W	(TR918E/TRV87E)
R773	1-216-817-11	METAL CHIP	470	5%	1/16W	(TR918E/TRV87E)
R774	1-216-840-11	METAL CHIP	39K	5%	1/16W	(TR918E/TRV87E)
R775	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R777	1-216-864-11	METAL CHIP	0	5%	1/16W	(TR918E/TRV87E)
R801	1-216-841-11	METAL CHIP	47K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R802	1-216-829-11	METAL CHIP	4.7K	5%	1/16W	(TR918E/TRV87E)
R803	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R805	1-216-827-11	METAL CHIP	3.3K	5%	1/16W	(TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)
R806	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R807	1-216-825-11	METAL CHIP	2.2K	5%	1/16W	(TR918E/TRV87E)
R808	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R809	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R810	1-216-821-11	METAL CHIP	1K	5%	1/16W	(TR918E/TRV87E)
R811	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R813	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R814	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R815	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R816	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R817	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R818	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R819	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R820	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R821	1-216-853-11	METAL CHIP	470K	5%	1/16W	
R822	1-216-841-11	METAL CHIP	47K	5%	1/16W	
R823	1-216-833-91	RES-CHIP	10K	5%	1/16W	
R824	1-216-826-11	METAL CHIP	2.7K	5%	1/16W	
R825	1-216-821-11	METAL CHIP	1K	5%	1/16W	
R831	1-216-845-11	METAL CHIP	100K	5%	1/16W	
R832	1-216-857-11	METAL CHIP	1M	5%	1/16W	
R833	1-218-903-11	METAL CHIP	220K	0.5%	1/16W	
R834	1-218-903-11	METAL CHIP	220K	0.5%	1/16W	
R835	1-218-911-11	METAL CHIP	470K	0.5%	1/16W	
R836	1-218-911-11	METAL CHIP	470K	0.5%	1/16W	

Ref. No.	Part No.	Description			Remarks
R837	1-216-845-11	METAL CHIP	100K	5%	1/16W
R838	1-216-845-11	METAL CHIP	100K	5%	1/16W
R839	1-216-845-11	METAL CHIP	100K	5%	1/16W
R840	1-216-821-11	METAL CHIP	1K	5%	1/16W
R843	1-216-821-11	METAL CHIP	1K	5%	1/16W
R844	1-216-821-11	METAL CHIP	1K	5%	1/16W
R845	1-216-821-11	METAL CHIP	1K	5%	1/16W
R847	1-216-845-11	METAL CHIP	100K	5%	1/16W
R848	1-216-821-11	METAL CHIP	1K	5%	1/16W
R849	1-216-821-11	METAL CHIP	1K	5%	1/16W
R865	1-216-841-11	METAL CHIP	47K	5%	1/16W
R866	1-216-854-11	METAL CHIP	560K	5%	1/16W
R867	1-216-821-11	METAL CHIP	1K	5%	1/16W
R868	1-216-853-11	METAL CHIP	470K	5%	1/16W
R869	1-216-853-11	METAL CHIP	470K	5%	1/16W
R870	1-216-853-11	METAL CHIP	470K	5%	1/16W
R871	1-216-857-11	METAL CHIP	1M	5%	1/16W
R872	1-216-845-11	METAL CHIP	100K	5%	1/16W
R873	1-216-845-11	METAL CHIP	100K	5%	1/16W
R874	1-216-821-11	METAL CHIP	1K	5%	1/16W
R875	1-216-821-11	METAL CHIP	1K	5%	1/16W
R876	1-219-570-11	RES-CHIP	10M	5%	1/16W
R877	1-216-821-11	METAL CHIP	1K	5%	1/16W
R878	1-216-845-11	METAL CHIP	100K	5%	1/16W
R879	1-216-853-11	METAL CHIP	470K	5%	1/16W
R880	1-216-853-11	METAL CHIP	470K	5%	1/16W
R881	1-216-853-11	METAL CHIP	470K	5%	1/16W
R882	1-216-817-11	METAL CHIP	470	5%	1/16W
R886	1-216-853-11	METAL CHIP	470K	5%	1/16W
R887	1-216-853-11	METAL CHIP	470K	5%	1/16W
R888	1-216-821-11	METAL CHIP	1K	5%	1/16W
R889	1-216-821-11	METAL CHIP	1K	5%	1/16W
R890	1-216-845-11	METAL CHIP	100K	5%	1/16W
R891	1-216-845-11	METAL CHIP	100K	5%	1/16W
R892	1-216-833-91	RES-CHIP	10K	5%	1/16W
R901	1-216-821-11	METAL CHIP	1K	5%	1/16W
R902	1-216-854-11	METAL CHIP	560K	5%	1/16W
R903	1-216-845-11	METAL CHIP	100K	5%	1/16W
R904	1-216-845-11	METAL CHIP	100K	5%	1/16W
R905	1-216-845-11	METAL CHIP	100K	5%	1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
R906	1-216-853-11	METAL CHIP	470K	5%	1/16W
R907	1-216-845-11	METAL CHIP	100K	5%	1/16W
R908	1-216-845-11	METAL CHIP	100K	5%	1/16W
R909	1-216-845-11	METAL CHIP	100K	5%	1/16W
R910	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R911	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R912	1-216-845-11	METAL CHIP	100K	5%	1/16W
R913	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R914	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R915	1-216-864-11	METAL CHIP	0	5%	1/16W
R916	1-216-825-11	METAL CHIP	2.2K	5%	1/16W
R917	1-216-845-11	METAL CHIP	100K	5%	1/16W
R918	1-216-833-91	RES-CHIP	10K	5%	1/16W
R919	1-216-833-91	RES-CHIP	10K	5%	1/16W
R920	1-216-841-11	METAL CHIP	47K	5%	1/16W
R921	1-216-845-11	METAL CHIP	100K	5%	1/16W
R922	1-216-845-11	METAL CHIP	100K	5%	1/16W
R923	1-216-853-11	METAL CHIP	470K	5%	1/16W
R924	1-216-853-11	METAL CHIP	470K	5%	1/16W
R925	1-216-841-11	METAL CHIP	47K	5%	1/16W
R930	1-216-841-11	METAL CHIP	47K	5%	1/16W
R931	1-216-841-11	METAL CHIP	47K	5%	1/16W
R932	1-216-864-11	METAL CHIP	0	5%	1/16W
R933	1-216-864-11	METAL CHIP	0	5%	1/16W
R934	1-216-845-11	METAL CHIP	100K	5%	1/16W
R972	1-216-864-11	METAL CHIP	0	5%	1/16W (TR717E/TR918E/TRV57E/TRV67E/TRV87E)
R973	1-216-821-11	METAL CHIP	1K	5%	1/16W
R974	1-216-821-11	METAL CHIP	1K	5%	1/16W (TR918E/TRV87E)
R977	1-216-864-11	METAL CHIP	0	5%	1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)
R978	1-216-864-11	METAL CHIP	0	5%	1/16W
R979	1-216-864-11	METAL CHIP	0	5%	1/16W
R980	1-216-821-11	METAL CHIP	1K	5%	1/16W
R981	1-216-864-11	METAL CHIP	0	5%	1/16W
R984	1-216-857-11	METAL CHIP	1M	5%	1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R985	1-216-845-11	METAL CHIP	100K	5%	1/16W (TR717E/TR918E/TRV67E/TRV87E)
R985	1-216-841-11	METAL CHIP	47K	5%	1/16W (TR617E)
R985	1-216-833-91	RES-CHIP	10K	5%	1/16W (TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)
R986	1-216-833-91	RES-CHIP	10K	5%	1/16W (TRV57E)
R986	1-216-837-11	METAL CHIP	22K	5%	1/16W (TR918E/TRV87E)
R986	1-216-841-11	METAL CHIP	47K	5%	1/16W (TR717E/TRV67E)
R986	1-216-845-11	METAL CHIP	100K	5%	1/16W (TR617E)
R987	1-216-857-11	METAL CHIP	1M	5%	1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)
R988	1-216-841-11	METAL CHIP	47K	5%	1/16W (TRV57E)
R988	1-216-845-11	METAL CHIP	100K	5%	1/16W (TRV37E/TRV47E/TRV48E/TRV67E/TRV87E)
R988	1-216-837-11	METAL CHIP	22K	5%	1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)
R989	1-216-833-91	RES-CHIP	10K	5%	1/16W (TRV37E/TRV47E/TRV48E/TRV67E/TRV87E)
R989	1-216-845-11	METAL CHIP	100K	5%	1/16W (TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/TRV57E)
R990	1-216-295-91	SHORT	0		(TR317E/TR417E/TR427E/TR617E/TR717E/TR918E)
R992	1-216-864-11	METAL CHIP	0	5%	1/16W (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)

< VIBRATOR >

Ref. No.	Part No.	Description	Remarks
X501	1-760-321-11	VIBRATOR, CRYSTAL (28.375MHz)	
X641	1-767-029-21	VIBRATOR, CRYSTAL (17.734475MHz)	(TRV87E)
X801	1-767-980-21	VIBRATOR, CERAMIC (20MHz)	
X802	1-760-458-21	VIBRATOR, CRYSTAL (32.768kHz)	
X901	1-760-655-41	VIBRATOR, CRYSTAL (20MHz)	

Ref. No.	Part No.	Description			Remarks
	A-7073-855-A	VF-129 (P) BOARD, COMPLETE			
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					(Ref.No.;3000Series)
		< CAPACITOR >			
C901	1-107-854-11	TANTAL. CHIP	68uF	20%	6.3V
C902	1-163-038-91	CERAMIC CHIP	0.1uF		25V
C903	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C904	1-162-965-11	CERAMIC CHIP	0.0015uF	10%	50V
C905	1-104-752-11	TANTAL. CHIP	33uF	20%	6.3V
C906	1-162-638-11	CERAMIC CHIP	1uF		16V
C907	1-104-563-11	FILM CHIP	0.1uF	5%	16V
C908	1-162-920-11	CERAMIC CHIP	27PF	5%	50V
C909	1-163-009-11	CERAMIC CHIP	0.001uF	10%	50V
⚠C910	1-162-625-11	CERAMIC CHIP	0.0047uF	5%	50V
⚠C911	1-164-715-11	CERAMIC CHIP	0.0068uF	5%	50V
C912	1-107-854-11	TANTAL. CHIP	68uF	20%	6.3V
C913	1-135-145-11	TANTALUM CHIP	0.47uF	10%	35V
C914	1-113-984-11	TANTAL. CHIP	1.5uF	20%	35V
C915	1-163-037-11	CERAMIC CHIP	0.022uF	10%	25V
C916	1-164-611-11	CERAMIC CHIP	0.001uF	10%	500V
		< CONNECTOR >			
* CN901	1-785-379-01	HOUSING, CONNECTOR			
* CN902	1-580-057-11	PIN, CONNECTOR (SMD) 4P			
		< DIODE >			
D901	8-719-951-21	DIODE PR1102W-TR			
D903	8-719-073-01	DIODE MA111-(K8).S0			
		< IC >			
IC901	8-759-196-14	IC BA7149F-E2			
		< COIL >			
L901	1-412-031-11	INDUCTOR CHIP	47uH		
L902	1-410-387-11	INDUCTOR CHIP	33uH		
⚠L903	1-402-680-21	COIL, FERRITE (HLC)(K)			
		< TRANSISTOR >			
Q901	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX		
Q902	8-729-106-68	TRANSISTOR	2SD1615-T1GLGK		
Q903	8-729-216-31	TRANSISTOR	2SA1163G-TE85L		
Q904	8-729-230-63	TRANSISTOR	2SD1819A-QRS-TX		
		< RESISTOR >			
R901	1-216-817-11	METAL CHIP	470	5%	1/16W
R902	1-216-817-11	METAL CHIP	470	5%	1/16W
R903	1-216-055-00	METAL CHIP	1.8K	5%	1/10W
R904	1-216-833-91	RES-CHIP	10K	5%	1/16W
R905	1-216-822-11	METAL CHIP	1.2K	5%	1/16W
R906	1-216-823-11	METAL CHIP	1.5K	5%	1/16W
R907	1-216-845-11	METAL CHIP	100K	5%	1/16W
R908	1-216-852-11	METAL CHIP	390K	5%	1/16W
R909	1-216-833-91	RES-CHIP	10K	5%	1/16W
R910	1-216-835-11	METAL CHIP	15K	5%	1/16W
R911	1-216-160-00	RES-CHIP	27	5%	1/8W
R912	1-216-857-11	METAL CHIP	1M	5%	1/16W
R916	1-218-881-11	METAL CHIP	27K	0.5%	1/16W
R917	1-218-893-11	METAL CHIP	82K	0.5%	1/16W
R918	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
R919	1-216-843-11	METAL CHIP	68K	5%	1/16W
R920	1-216-837-11	METAL CHIP	22K	5%	1/16W
R921	1-216-795-11	RES-CHIP	6.8	5%	1/16W
R922	1-216-850-11	METAL CHIP	270K	5%	1/16W
R923	1-216-857-11	METAL CHIP	1M	5%	1/16W
R924	1-216-862-11	RES-CHIP	2.7M	5%	1/16W
R925	1-216-862-11	RES-CHIP	2.7M	5%	1/16W
R926	1-216-821-11	METAL CHIP	1K	5%	1/16W
R927	1-216-821-11	METAL CHIP	1K	5%	1/16W
R928	1-216-827-11	METAL CHIP	3.3K	5%	1/16W
R929	1-216-821-11	METAL CHIP	1K	5%	1/16W
R930	1-216-791-11	METAL CHIP	3.3	5%	1/16W
R931	1-217-671-11	METAL CHIP	1	5%	1/10W
R932	1-216-829-11	METAL CHIP	4.7K	5%	1/16W
		< VARIABLE RESISTOR >			
RV903	1-238-852-11	RES, ADJ, CERMET 470			
RV904	1-238-095-11	RES, ADJ, CERMET 470K			
		< TRANSFORMER >			
⚠T901	1-453-124-11	TRANSFORMER ASSY, FLYBACK			
		< FLAT CABLE >			
⚠W901	1-540-019-21	SOCKET ASSY, CRT			

Ref. No.	Part No.	Description			Remarks
	A-7074-169-A	VL-28 (BO) BOARD, COMPLETE			(TR617E/TR717E/TR918E)
		**************************************			
					(Ref.No.;7000Series)
		< CAPACITOR >			
C151	1-115-566-11	CERAMIC CHIP	4.7uF	10%	10V
C153	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN151	1-766-644-21	CONNECTOR, FFC/FPC 8P			
		< COIL >			
L151	1-416-344-11	INDUCTOR	10uH		
		< TRANSISTOR >			
Q151	8-729-043-94	TRANSISTOR	CPH3106-PM-TL		
Q152	8-729-028-26	TRANSISTOR	2SK1829(TE85L)		
		< RESISTOR >			
R151	1-216-845-11	METAL CHIP	100K	5%	1/16W
R152	1-216-864-11	METAL CHIP	0	5%	1/16W
R153	1-216-813-11	METAL CHIP	220	5%	1/16W
R154	1-216-821-11	METAL CHIP	1K	5%	1/16W

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

VL-29

Ref. No.	Part No.	Description	Remarks
	A-7074-130-A	VL-29 (VHXRIBO) BOARD, COMPLETE (TRV57E/TRV67E/TRV87E) ** (Ref.No.;7000Series)	
		< CAPACITOR >	
C151	1-115-566-11	CERAMIC CHIP 4.7uF 10% 10V	
C153	1-162-964-11	CERAMIC CHIP 0.001uF 10% 50V	
		< CONNECTOR >	
CN151	1-766-644-21	CONNECTOR, FFC/FPC 8P	
		< COIL >	
L151	1-416-344-11	INDUCTOR 10uH	
		< TRANSISTOR >	
Q151	8-729-043-94	TRANSISTOR CPH3106-PM-TL	
Q152	8-729-028-26	TRANSISTOR 2SK1829(TE85L)	
		< RESISTOR >	
R151	1-216-845-11	METAL CHIP 100K 5% 1/16W	
R152	1-216-864-11	METAL CHIP 0 5% 1/16W	
R153	1-216-813-11	METAL CHIP 220 5% 1/16W	
R154	1-216-821-11	METAL CHIP 1K 5% 1/16W	
		MISCELLANEOUS **************	
1	1-517-857-11	LIGHT, VIDEO (TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)	
13	1-694-384-11	TERMINAL BOARD, BATTERY	
15	1-672-663-21	FP-49 FLEXIBLE BOARD (TR918E/TRV87E)	
21	1-467-574-21	REMOTE COMMANDER (RMT-708) (TR427E/TR617E/TR717E/TR918E/TRV47E/ TRV48E/TRV57E/TRV67E/TRV87E)	
23	1-672-670-11	FP-43 FLEXIBLE BOARD	
51	1-475-621-11	SWITCH BLOCK, CONTROL (MR-8500)	
55	1-791-948-11	CABLE, FLEXIBLE FLAT (FFC-001)	
58	1-672-668-21	FP-62 FLEXIBLE BOARD (TRV87E)	
101	1-475-621-11	SWITCH BLOCK, CONTROL (MR-8500)	
104	1-791-948-11	CABLE, FLEXIBLE FLAT (FFC-001)	
108	1-803-844-81	DISPLAY, PANEL, LIQUID CRYSTAL (TR317E/TR417E/TR427E/TR617E/TR717E)	
108	A-7094-150-A	INDICATION LCD BLOCK ASSY (TR918E)	
117	1-672-668-21	FP-62 FLEXIBLE BOARD (TR918E)	
214	1-418-758-21	SWITCH BLOCK, CONTROL (SS-9700)	
217	1-676-298-11	FP-150 FLEXIBLE BOARD	
221	1-418-760-11	SWITCH BLOCK, CONTROL (FK-8500) (TRV87E:E,HK,AUS,CN,JE)	
221	1-418-760-21	SWITCH BLOCK, CONTROL (FK-8500) (TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
221	1-418-760-41	SWITCH BLOCK, CONTROL (FK-8500) (TR918E/TRV87E:AEP,EE,NE,RU,UK)	
225	1-672-673-11	FP-46 FLEXIBLE BOARD (TR617E/TR717E/TR918E/TRV57E/TRV67E/TRV87E)	
227	1-676-296-11	FP-147 FLEXIBLE BOARD	
230	1-672-671-11	FP-44 FLEXIBLE BOARD (TR617E/TR717E/TR918E,TRV37E/TRV47E/ TRV48E/TRV57E/TRV67E/TRV87E)	
230	1-676-297-11	FP-149 FLEXIBLE BOARD (TR317E/TR417E/TR427E)	
262	1-792-454-11	CABLE, FLEXIBLE FLAT (FFC-289)	
267	1-758-084-21	FILTER BLOCK, OPTICAL (TR317E/TR417E/TR427E/TR918E/ TRV37E/TRV47E/TRV48E/TRV87E)	
267	1-758-133-21	FILTER BLOCK, OPTICAL (TR617E/TR717E/TRV57E/TRV67E)	
269	8-848-729-01	DEVICE, LENS LSV-630A	
302	1-676-300-11	FP-152 FLEXIBLE BOARD	
304	1-960-161-11	HARNESS (DP-78)	
310	1-803-844-81	DISPLAY PANEL, LIQUID CRYSTAL (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)	
310	A-7094-150-A	INDICATION LCD BLOCK ASSY (TR918E)	
760	1-658-213-11	FP-355 FLEXIBLE BOARD	
762	1-657-786-13	FP-221 FLEXIBLE BOARD	
764	1-658-214-11	FP-356 FLEXIBLE BOARD	
803	1-657-785-11	FP-248 FLEXIBLE BOARD	
817	1-657-784-11	FP-220 FLEXIBLE BOARD	
D001	8-719-988-42	DIODE GL453	
IC201	A-7031-043-A	CCD BLOCK ASSY (TR317E/TR417E/TR427E/TRV37E/TRV47E/TRV48E)	
IC201	A-7031-046-A	CCD BLOCK ASSY (TR918E)	
IC201	A-7031-049-A	CCD BLOCK ASSY (TR617E/TR717E/TRV57E/TRV67E)	
IC201	A-7031-060-A	CCD BLOCK ASSY (TRV87E)	
LCD901	1-803-859-21	INDICATOR MODULE LIQUID CRYSTAL (SERVICE)	
⚠LED901	1-517-858-11	LIGHT, BACK	
M901	A-7048-899-A	DRUM BLOCK ASSY (DGH-0F1A-R) (PAL)	
M902	8-835-531-32	MOTOR, DC SCE-0601A/C-NP (CAPSTAN)	
M903	X-3945-401-1	MOTOR ASSY, DC (LOADING)	
M905	1-763-262-11	MOTOR, STEPPING F630	
M906	1-763-046-21	MOTOR, STEPPING Z600	
MIC901	1-542-312-11	MICROPHONE (R)	
MIC902	1-542-312-11	MICROPHONE (L) (TR918E/TRV87E)	
⚠ND901	1-517-752-31	TUBE, FLUORESCENT, COLD CATHODE (TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E)	
S001	1-682-614-11	SWITCH, PUSH (3KEY) (Hi8 MP,ME/MP,REC PROOF)	
S002	1-572-688-11	SWITCH, PUSH (1 KEY) (C.C.LOCK)	
S901	1-762-436-15	SWITCH (ENCODER), ROTARY	
S910	1-771-848-11	SWITCH, PUSH	
SP901	1-504-753-41	SPEAKER (2.8CM)	
⚠V901	1-452-673-61	CRT ASSY (M01KXX90WB)	

Be sure to read “Precautions upon replacing CCD imager” on page 4-8 when changing the CCD imager.

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

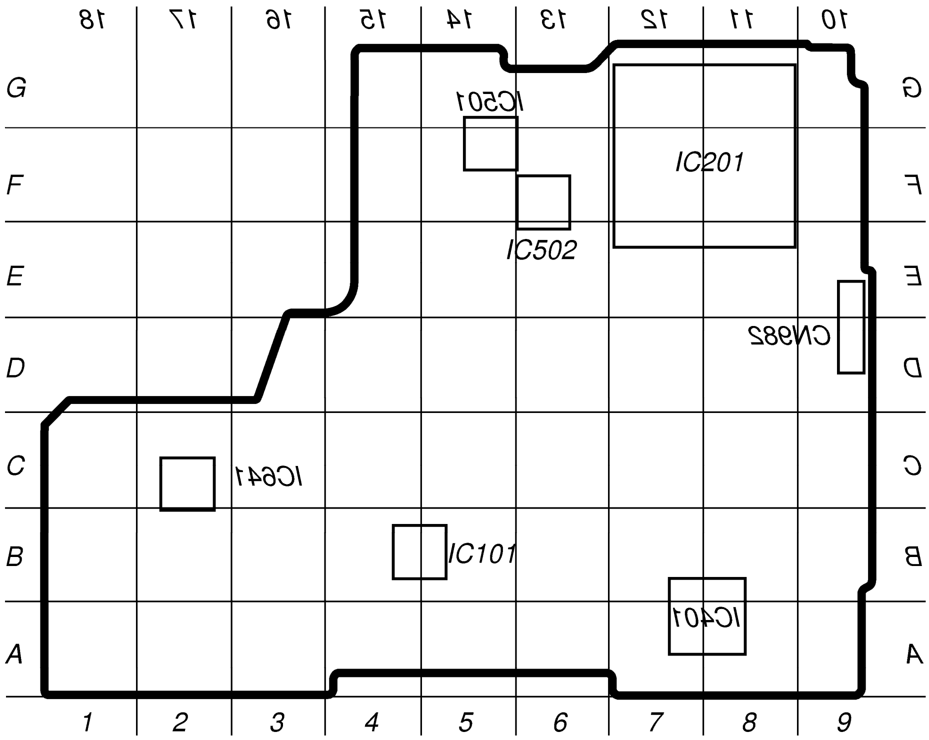
Ref. No.	Part No.	Description	Remarks
		ACCESSORIES ***********	
	1-467-574-21	REMOTE COMMANDER (RMT-708)	(TR427E/TR617E/TR717E/TR918E/TRV47E/ TRV48E/TRV57E/TRV67E/TRV87E)
⚠	1-475-599-11	ADAPTOR, AC	
	1-569-007-11	ADAPTOR, CONVERSION	(TRV47E:JE/TRV57E:JE/TRV67E:JE/TRV87E:JE)
	1-569-008-21	ADAPTOR, CONVERSION 2P	(TR317E:E,HK/TRV47E:E,HK/TRV57E:E,HK/ TRV67E:E,HK/TRV87E:E,HK)
	1-575-334-11	CORD,CONNECTION (A/V)(1.5m)	(TR918E/TRV87E)
⚠	1-690-827-11	CORD SET, POWER	(TR417E:AEP,EE,NE,RU/TR427E:AEP,EE,NE,RU/TR617E/ TR717E:AEP,EE,NE,RU/TR918E:AEP,EE,NE,RU/ TRV37E:AEP,EENE,RU/TRV48E:AEP,EE,NE,RU/ TRV57E:AEP,EE,NE,RU/TRV67E:AEP,EE,NE,RU/ TRV87E:AEP,EE,NE,RU)
⚠	1-696-819-11	CORD,POWER	(TR317E:AUS/TRV47E:AUS/TRV57E:AUS/ TRV67E:AUS/TRV87E:AUS)
	1-696-862-21	CORD,CONNECTION (A/V)(1.5m)	(TR317E/TR417E/TR427E/TR617E/TR717E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E)
⚠	1-769-608-11	CORD,POWER	(TR317E:E/TRV47E:E/TRV57E:E/TRV67E:E/TRV87E:E)
	1-770-783-11	CONNECTOR, CONVERSION (21 PIN)	(TR417E/TR427E/TR617E/TR717E/TR918E/TRV37E/TRV48E/ TRV57E:AEP,EE,NE,RU,UK/TRV67E:AEP,EE,NE,RU,UK/ TRV87E:AEP,EE,NE,RU,UK)
⚠	1-775-843-52	CORD,POWER (WITH FILTER)	(TR417E:UK/TR427E:UK/TR717E:UK/917:UK/TRV37E:UK/ TRV57E:UK/TRV67E:UK/TRV87E:UK
⚠	1-782-476-11	CORD,POWER	(TR317E:CN/TRV47E:CN/TRV57E:CN/TRV67E:CN/TRV87E:CN)
⚠	1-783-374-11	CORD,POWER	(TR317E:HK/TRV47E:HK/TRV57E:HK/TRV67E:HK/TRV87E:HK)
⚠	1-790-073-11	CORD,POWER 2P	(TRV47E:JE/TRV57E:JE/TRV67E:JE/TRV87E:JE)
	3-868-321-11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN)	(TR417E:EE,NE,RE,UK/TR427E:EE,NE,RU,UK/TR617E:EE,NE,RU/ TR717E:EE,NE,RU,UK/TR918E:EE,NE,RU)
	3-868-321-21	MANUAL, INSTRUCTION	(SPANISH/PORTURUESE) (TR417E:AEP1/TR427E:AEP1/ TR617E:AEP1/TR717E:AEP1/TR918E:AEP1)
	3-868-321-31	MANUAL, INSTRUCTION (GERMAN/ITALIAN)	(TR417E:AEP/TR427E:AEP/TR617E:AEP/ TR717E:AEP,EE/TR918E:AEP)
	3-868-321-41	MANUAL, INSTRUCTION (FRENCH/DUTCH)	(TR417E:AEP2/TR427E:AEP2/TR617E:AEP2/ TR717E:AEP2/TR918E:AEP2)
	3-868-321-51	MANUAL, INSTRUCTION (SWEDISH/POLISH)	(TR427E:EE,NE,RU/TR617E:EE,NE,RU/TR918E:EE,NE,RU)
	3-868-322-11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN)	(TR317E:AUS,HK,CN)
	3-868-322-21	MANUAL, INSTRUCTION (FRENCH/GERMAN)	(TR317E:E)
	3-868-322-31	MANUAL, INSTRUCTION (ARABIC/PERSIAN)	(TR317E:E)
	3-868-322-41	MANUAL, INSTRUCTION	(SIMPLIFIED CHINESE) (TR317E:CH)
	3-868-322-51	MANUAL, INSTRUCTION	(TRADITIONAL CHINESE) (TR317E:HK)
	3-868-324-11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN)	(TRV37E:EE,NE,RU,UK/TRV48E:EE,NE,RU,UK/ TRV57E:EE,NE,RU,UK/TRV67E:EE,NE,RU,UK/ TRV87E:EE,NE,RU,UK)
	3-868-324-21	MANUAL, INSTRUCTION	(SPANISH/PORTURUESE) (TRV37E:AEP1/TRV48E:AEP1/ TRV57E:AEP1/TRV67E:AEP1/TRV87E:AEP1)
	3-868-324-31	MANUAL, INSTRUCTION (GERMAN/ITALIAN)	(TRV37E:AEP/TRV48E:AEP/TRV57E:AEP/ TRV67E:AEP/TRV87E:AEP)
	3-868-324-41	MANUAL, INSTRUCTION (FRENCH/DUTCH)	(TRV37E:AEP2/TRV48E:AEP2/TRV57E:AEP2/ TRV67E:AEP2/TRV87E:AEP2)
	3-868-324-51	MANUAL, INSTRUCTION (SWEDISH/POLISH)	(TRV37E:EE,NE,RU/TRV48E:EE,NE,RU/TRV57E:EE,NE,RU/ TRV67E:EE,NE,RU/TRV87E:EE,NE,RU)
	3-868-325-11	MANUAL, INSTRUCTION (ENGLISH/RUSSIAN)	(TRV47E/TRV57E:E,HK,AUS,CN,JE/TRV67E:E,HK,AUS,CH,JE/ TRV87E:E,HK,AUS,CH,JE)
	3-868-325-21	MANUAL, INSTRUCTION (FRENCH/GERMAN)	(TRV47E:E,JE/TRV57E:E,JE/TRV67E:E,JE/TRV87E:E,JE)
	3-868-325-31	MANUAL, INSTRUCTION (ARABIC/PERSIAN)	(TRV47E:E/TRV57E:E/TRV67E:E/TRV87E:E)
	3-868-325-41	MANUAL, INSTRUCTION	(SIMPLIFIED CHINESE) (TRV47E:E,CN,JE/TRV57E:E,CN,JE/ TRV67E:E,CH,JE/TRV87E:E,CH,JE)
	3-868-325-51	MANUAL, INSTRUCTION	(TRADITIONAL CHINESE) (TRV47E:HK/TRV57E:HK/ TRV67E:HK/TRV87E:HK)
	3-987-015-01	BELT(S), SHOULDER	
	A-7094-141-A	NP-330 BATTERY PACK	

Note : The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

⟨PARTS REFERENCE SHEET⟩

You can find the parts position of location of mount locations applying to VC-234 board of a set.

VC-234 CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
SIDE A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D
C
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IC501
IC201
IC502
CN982
IC641
IC101
IC401
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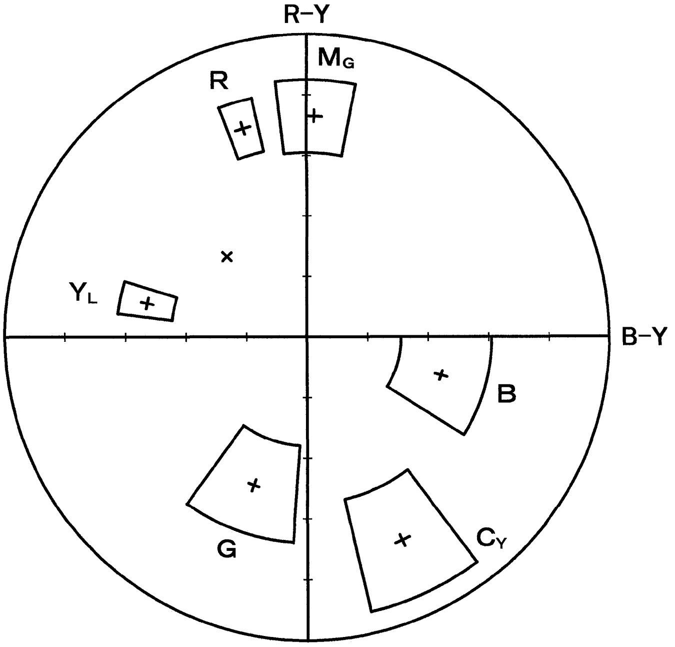
VC-234 CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/
TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E
SIDE B

〈FOR CAMERA COLOR REPRODUCTION ADJUSTMENT〉

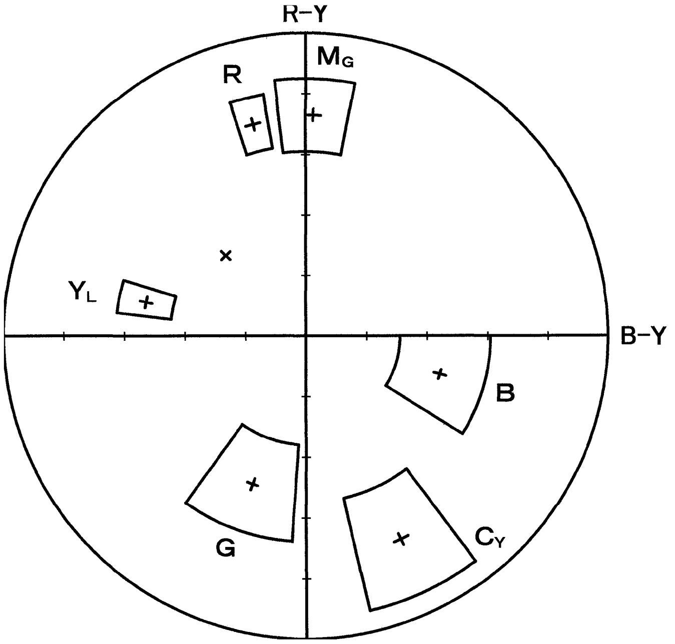
For 510H model and 760H TYPE S model



CCD-TR617E/TR717E/TR918E/
TRV57E/TRV67E/TRV87E

Take a copy of CAMERA COLOR REPRODUCTION FRAME and Parts referencesheets with a clear sheet for use.

For 760H TYPE P model



CCD-TR317E/TR417E/TR427E/
TRV37E/TRV47E/TRV48E

CCD-TR317E/TR417E/TR427E/TR617E/TR717E/TR918E/ TRV37E/TRV47E/TRV48E/TRV57E/TRV67E/TRV87E

9-974-197-11

Sony Corporation
Personal VIDEO Products Company

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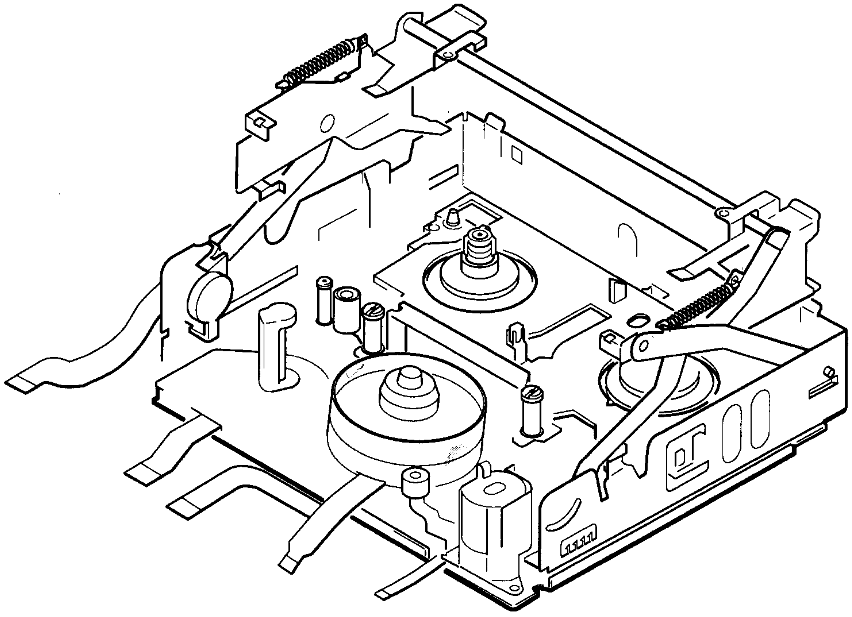
8mm Video MECHANICAL ADJUSTMENT MANUAL Ⅶ

B MECHANISM

Video8

Use this mechanical adjustment manual Ⅶ together with
the service manual of the respective models.



8 MECHANISM DECK

SONY®

MICROFILM

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For the mode selector operation, schematic diagram and parts list, refer to the Supplement-1 Manual.

1. PREPARATION FOR CHECKING, ADJUSTING AND REPLACING THE MECHANISM

For the disassembly procedures of the cabinet and printed wiring boards, please refer to the “DISASSEMBLY” section of the service manual of the respective models.
To re-assemble the mechanical parts which are disassembled in the following sections, perform the disassembly steps in reverse, unless otherwise specified.
The mechanisms are adjusted while set in the $\boxed{\text{USE}}$ mode of operation. (Refer to the “Mode Selector Operation Procedure of the Supplement-1 Manual for how to enter the $\boxed{\text{USE}}$ mode.)

1-1. Cassette Compartment Block Assy

1. Disassembly Procedure (Refer to Fig. 1.)

1) Set the mechanism to $\boxed{\text{USE}}$ mode.
2) Confirm that the Cassette Compartment Block Assy is opened. If it is not opened, open it referring to Fig. a.
3) Remove the claws Ⓐ and Ⓑ of the Damper Assy ① from the chassis.
4) Remove the washer ② from the shaft of the Cassette Compartment near the Drum, next to the loading motor. Remove the shaft of the arm from the slot.
5) Remove the shaft of the arm from the slot Ⓒ of the Cassette Compartment near the Drum, next to the capstan motor. (Refer to Fig. b)
6) Lift up the Cassette Compartment at the Drum side in the direction of the arrow Ⓓ, and remove the arm shaft of the Cassette Compartment from the LS Chassis ④ near the Reel Tables. Remove the Cassette Compartment Assy ③ in the direction of the arrow Ⓔ.

2. Precautions During Re-Assembling

1) After attaching the Tension Spring, confirm that the straight portion at the end of the curved hook of the spring is positioned inside the mechanism. (Refer to Fig. c)
2) Confirm that the claw in the bottom of the shaft near the Reel Table of the Cassette Compartment is hooked to the LS Chassis.
3) Confirm that the claw of the Damper Assy is hooked to the LS Chassis. (Refer to Fig. b)

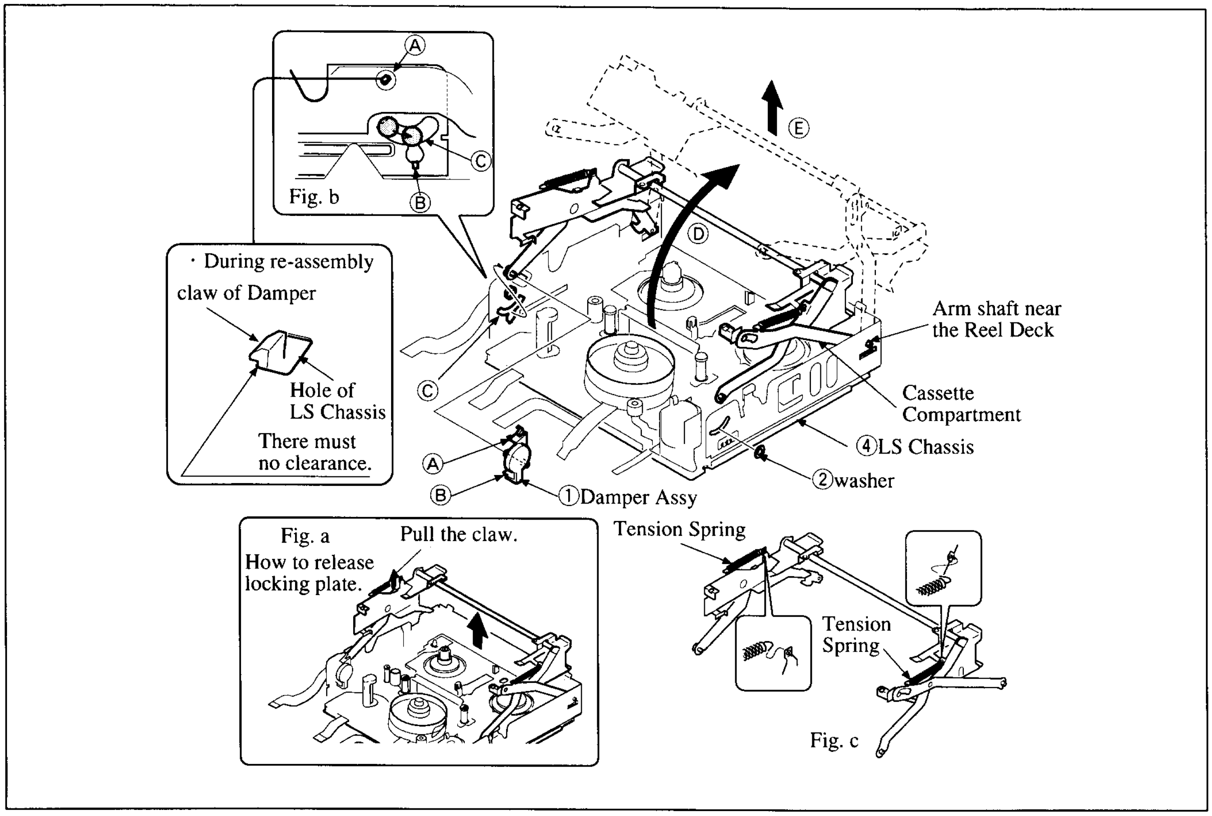

Ⓐ
Ⓒ
Fig. b
Ⓑ
Ⓔ
Ⓓ
· During re-assembly
claw of Damper
Hole of
LS Chassis
There must
no clearance.
Ⓒ
Ⓐ
Ⓑ
①Damper Assy
Arm shaft near
the Reel Deck
Cassette
Compartment
④LS Chassis
②washer
Fig. a
Pull the claw.
How to release
locking plate.
Tension Spring
Tension
Spring
Fig. c

Fig. 1

1-2. How to Operate the Mechanism with the Cassette Compartment Block Assy Removed

1. How to load a cassette tape (Refer to Fig. 2):

1) While referring to section "DISASSEMBLY" of the respective service manual, turn the main power on with the cabinet and camera section removed. (It enables to operate the mechanical deck.)
2) Connect the adjustment remote commander (Ref. No. J-10) and establish the TEST mode.

Example of establishing the TEST mode: model CCD-TR420E/TR440E. Select page: 6, address: 00, set data :01 and press the PAUSE button to release protection. Select page: 7, address: 01, set data: 01 and press the PAUSE button. After tape loading or other desired operations of mechanism are completed, be sure to perform the following: Select page: F, address: 01, set data :00 and press the PAUSE button. Select page: 6, address: 00, set data: 00 and press the PAUSE button.

3) Press the push-switch ① knob in the direction of the arrow which sets the machine into loading mode.

☆ PB, FF/REW and CUE/REV operations are possible.

2. How to establish RECORD mode:

1) Press pin of the push-switch ② (ON state) and keep the ON state by fixing with adhesive tape ③.
2) Turn the main power switch ON (select VTR or CAMERA position of in case of camera).
3) Set the RECORD switch to ON.
(When the TEST mode is selected, the rotation detection of the S and T reel tables is muted, and the top end sensor is disable which allow to run the tape.)

3. How to eject a cassette tape:

1) Press the EJECT switch to ON.

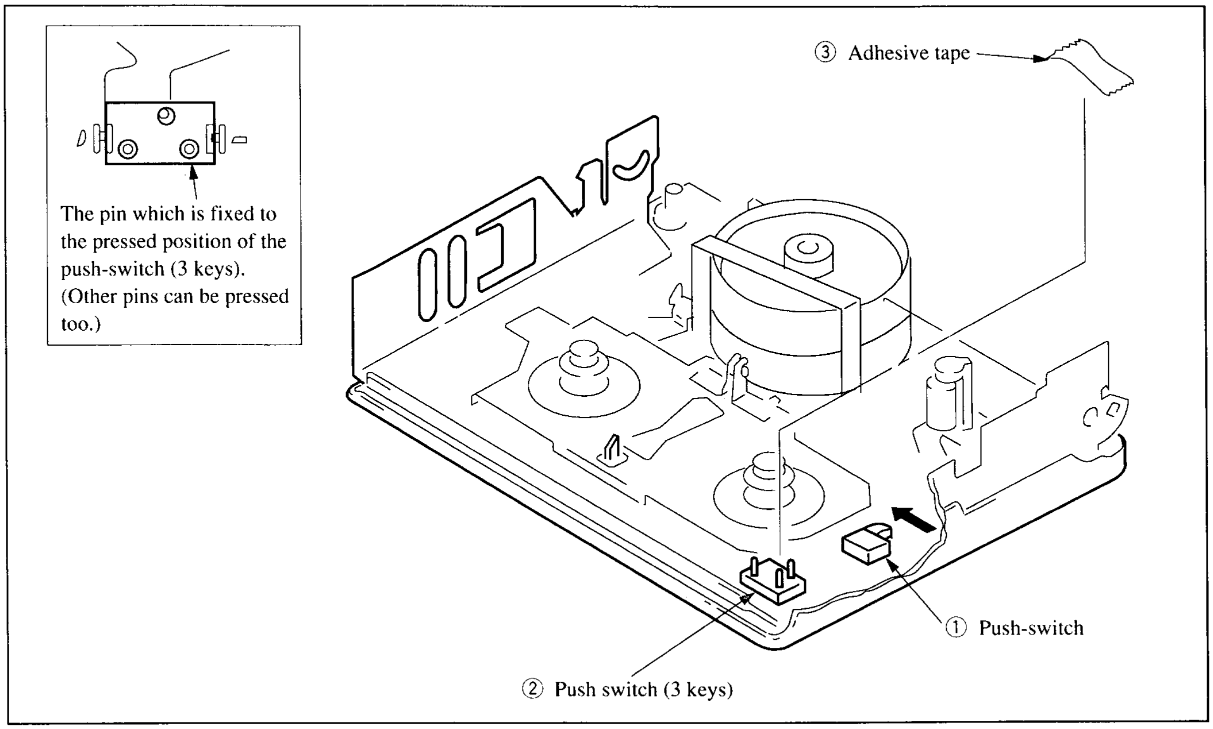

The pin which is fixed to the pressed position of the push-switch (3 keys). (Other pins can be pressed too.)
③ Adhesive tape
① Push-switch
② Push switch (3 keys)

Fig. 2

2. PERIODIC CHECK AND MAINTENANCE ITEMS

- Perform the following periodic check and maintenance to ensure that the machine functions continue to operate in peak condition, and to protect the tape and mechanism deck. After completing repair work, perform the following maintenance items regardless of how long the user's machine has been used.

2-1. Rotary Drum Assy Cleaning

Press the cleaning piece (Ref. No. J-2) moistened with cleaning fluid (Ref. No. J-1) lightly on the Rotary Drum Assy. Gently turn the Rotary Drum Assy slowly by hand counter-clockwise to clean the rotary drum.

Caution: Never attempt to turn the head drum motor by turning the main power ON. Also, never turn the drum clockwise by hand. In addition, never move the cleaning piece vertically with respect to the head tips, since this will damage them. Never clean the head drum in any way other than as described above.

2-2. Tape Path Cleaning (Refer to Fig. 3.)

1) Set the mechanism to USE mode. Clean the tape path system (TG-1, TG-2, TG-3, TG-4, pinch roller, capstan shaft) and lower drum using a very thin cotton swab (Ref. No. J-3) moistened with cleaning fluid.

Caution: Take care that the very thin cotton swab (Ref. No. J-3) does not touch the oil or grease of the various link mechanisms.

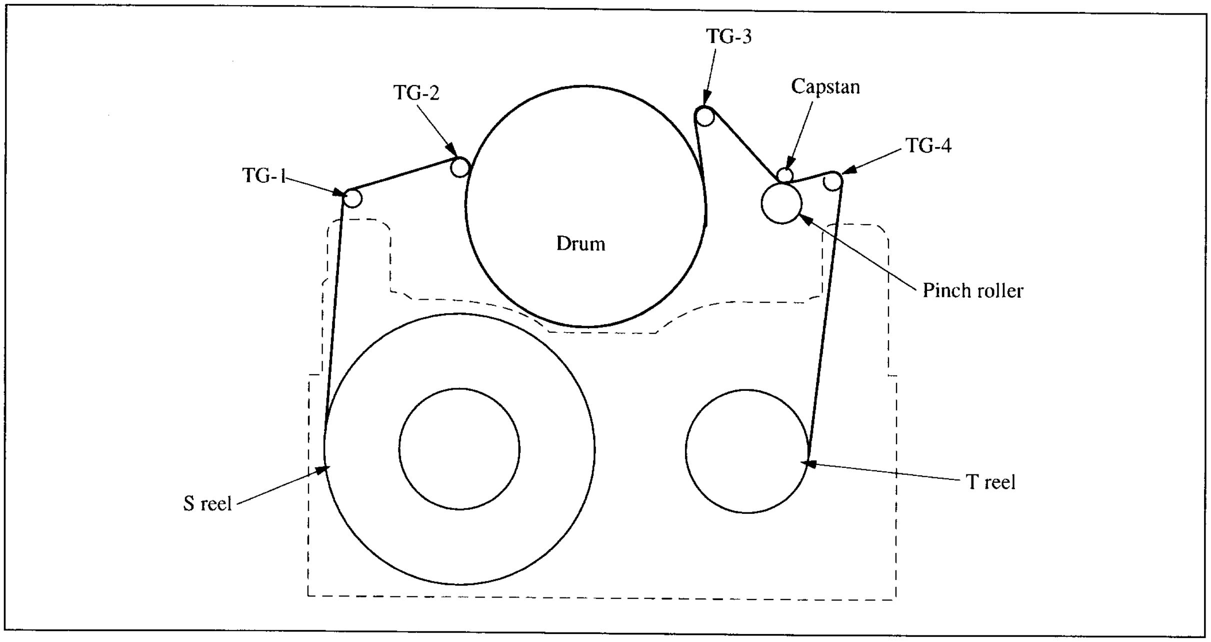


Fig. 3

2-3. Periodic Check Items

Maintenance and Inspection Points		Operating Hours										Remarks
		500	1000	1500	2000	2500	3000	3500	4000	4500	5000	
	Cleaning of tape running surface	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
	Cleaning and degaussing of Rotary Drum Assy	○	○	○	○	○	○	○	○	○	○	Take care not to get oily.
Drive System	Timing Belt	—	☆	—	☆	—	☆	—	☆	—	☆	3-965-546-01
	Capstan Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	Take great care not to let any oil contact the tape running surface.
	Change Gear Shaft Relay Pulley Shaft	—	◎	—	◎	—	◎	—	◎	—	◎	
	Loading Motor	—	☆	—	☆	—	☆	—	☆	—	☆	X-3945-401-1
Performance Check	Abnormal Sound	☆	☆	☆	☆	☆	☆	☆	☆	☆	☆	
	Tape Hold-back Tension Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	
	Brake System	—	☆	—	☆	—	☆	—	☆	—	☆	
	FWD } Torque RVS } Measurement	—	☆	—	☆	—	☆	—	☆	—	☆	

○Cleaning ◎Lubrication ☆Check

Note: When overhauling the machine, replace the parts while referring to the above table.

Note: Regarding oil

- Be sure to use the specified oil. (If the viscosity and other characteristics are different, various troubles may arise.)
  Oil: Sony part No. 7-661-018-18
  (Mitsubishi diamond oil hydro fluid NT-68)
- For the oil lubricated bearings, use oil free from dust or foreign materials. If the oil contains any dust or foreign material, the bearings will wear out quickly or burn out.
- One drop of oil is the amount of oil which forms at the tip of a stick of 2 mm diameter.

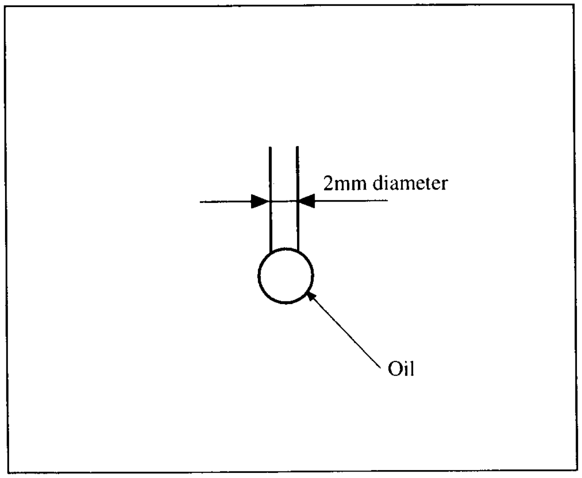


Fig. 4

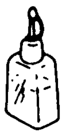
2-4. Service Tool List

Ref. No.	Name	Parts Code	Tool Stamp	Applications
J-1	Cleaning fluid	Y-2031-001-0	—	
J-2	Cleaning piece	2-034-697-00	—	
J-3	Very thin cotton swab (made by Nippon Cotton Swab Inc. (P752D))		—	
J-4	Head demagnetizer	Commercially available	—	
J-5	Dental mirror Spare mirror	J-6080-029-A J-6080-030-1	SL-5052	Tape path
J-6	Alignment tape (NTSC : WR5-1NP) (PAL : WR5-1CP)	8-967-995-02 8-967-995-07	—	Tape path
J-7	FWD/RVS take-up torque cassette	J-6080-824A	GD-2086	
J-8	Screwdriver for tape path adjustment	J-6082-026-A	—	For tape guide adjustment
J-9	FWD/BACK tension adjustment screwdriver	J-6082-187-A	—	
J-10	Remote commander for adjustment	J-6082-053-B	—	Tape path (Setting PATH mode)
J-11	MD process table	J-6082-166-A	—	
J-12	FLOIL Grease SG-941	7-662-001-39	—	
J-13	FLOIL Grease SG-055G	7-651-000-09	—	

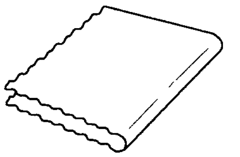
Other equipment

- Oscilloscope
- Analog circuit tester (input impedance 20 kΩ)

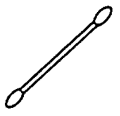
J-1



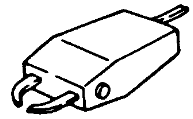
J-2



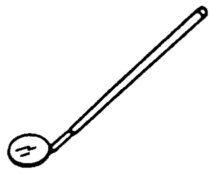
J-3



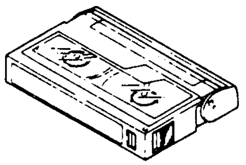
J-4



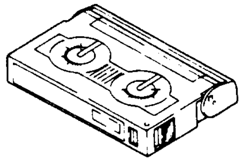
J-5



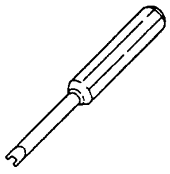
J-6



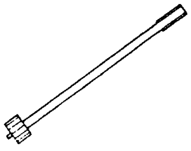
J-7



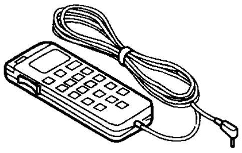
J-8



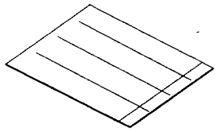
J-9



J-10



J-11



J-12

J-13

7-651-000-09
SG-055G

3. CHECKING, ADJUSTING AND REPLACING THE MECHANISM

3-1. HC Roller Block Assy (Refer to Fig. 5)

1. Disassembly Procedure

1) Remove the Torsion Spring ① from the cut-out Ⓐ of the motor holder. Hook it to the claw Ⓑ of the HC Arm.
2) Remove the HC Roller Block Assy in the direction shown by Ⓒ.
3) Remove the stop washer ② and remove the HC Roller Block Assy ③.

2. Precautions During Re-Assembly

1) After attaching the HC Roller Block Assy, confirm that both ends of the torsion spring are hooked to Ⓐ and Ⓓ.
2) Align the block so that the cut-out Ⓔ agrees with the rib Ⓕ.

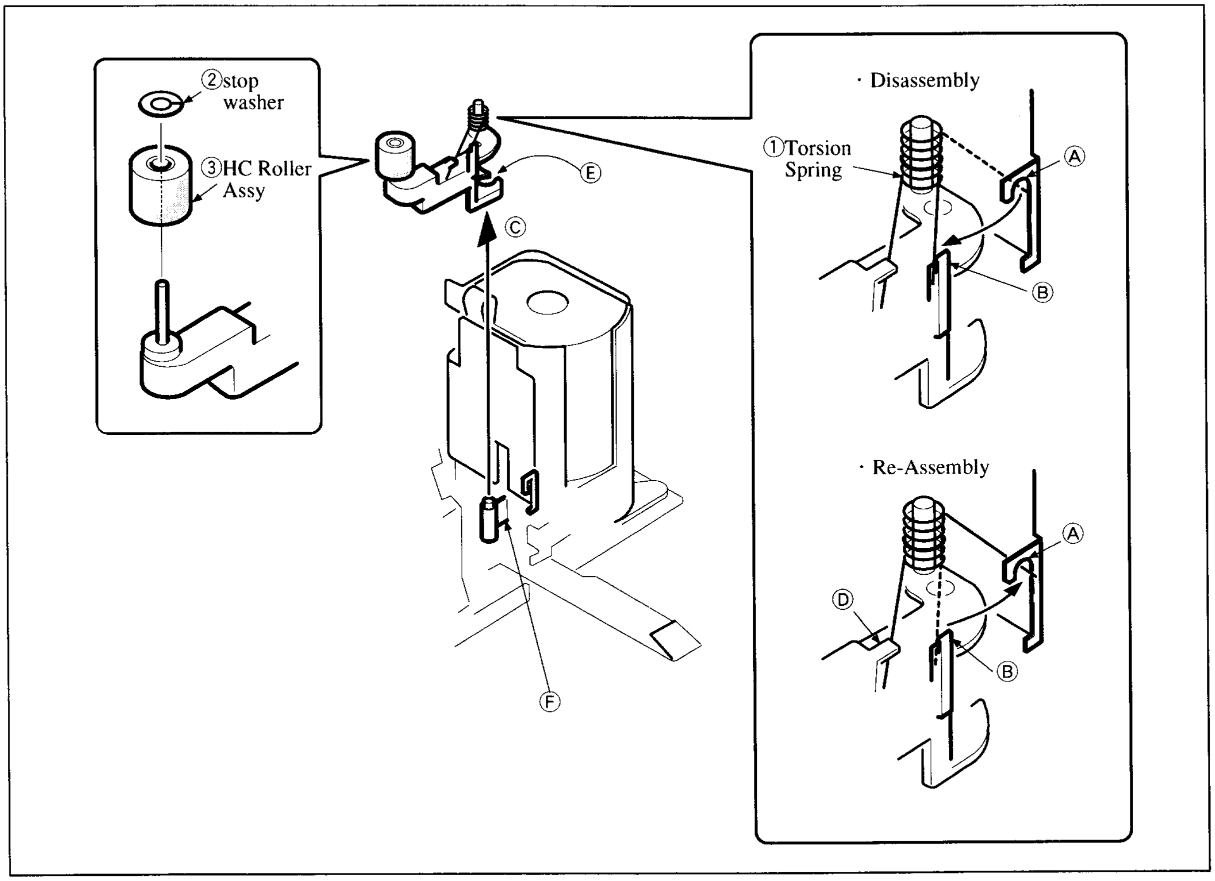

②stop washer
③HC Roller Assy
Ⓔ
Ⓒ
Ⓕ
· Disassembly
①Torsion Spring
Ⓐ
Ⓑ
· Re-Assembly
Ⓐ
Ⓓ
Ⓑ

Fig. 5

3-2. Drum Assy (Refer to Fig. 6)

1. Disassembly Procedure

1) Set the mechanism to USE mode.
2) Remove the three screws (M 1.4) ① and remove the Drum Assy ②.

Caution: Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)

2. Precautions During Re-Assembly

1) Be careful not to touch the outer circumference of the drum. (Hold the portions Ⓐ and Ⓑ of the drum assy.)
2) When tightening the three screws (M 1.4), tighten them in the order Ⓒ, then Ⓓ, then Ⓔ.
3) After attaching the Drum Assy, perform the steps in section "4. TAPE PATH ADJUSTMENT".

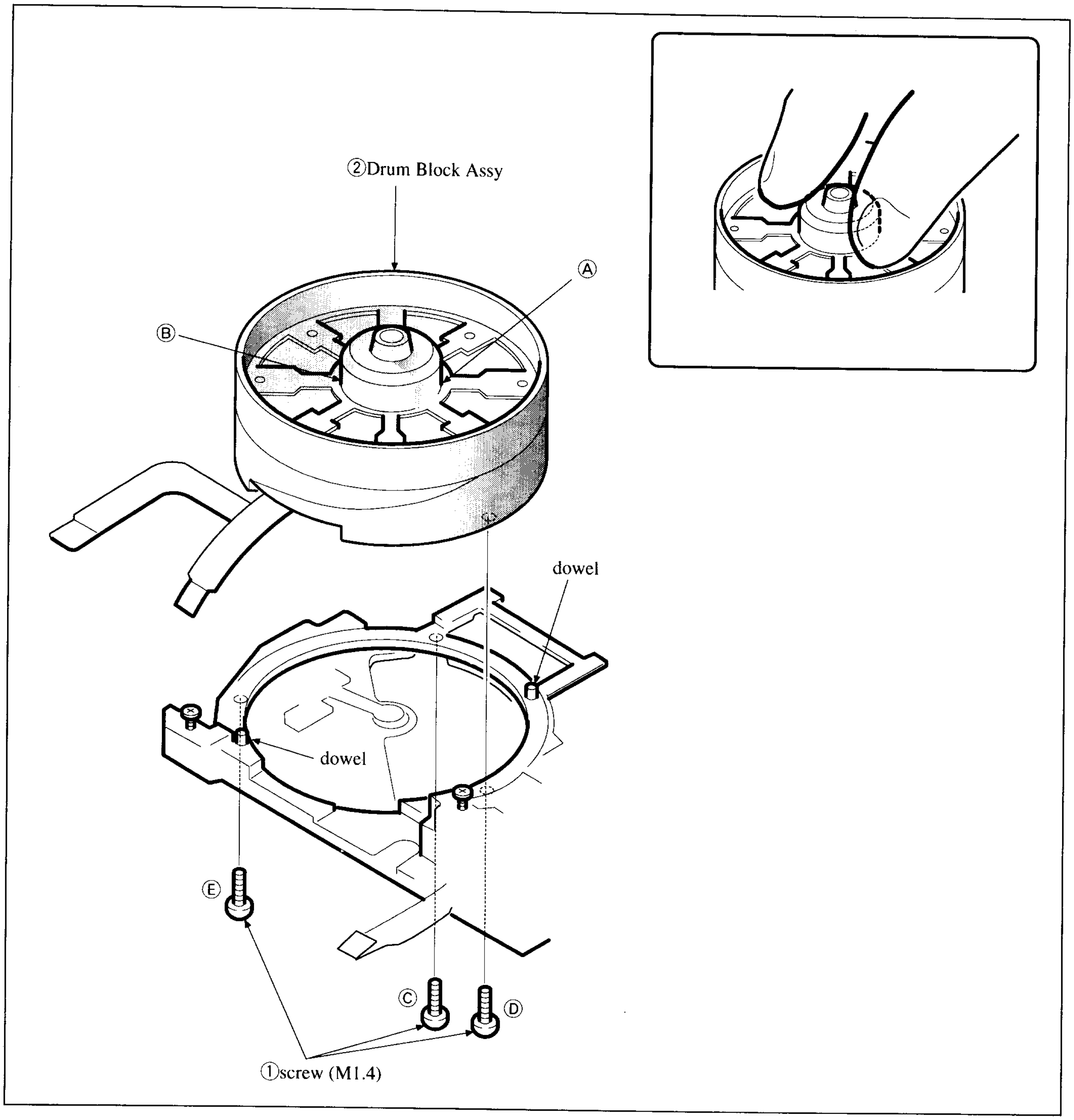


Fig. 6

3-3. Drum Base Block Assy, Shaft Ground (Refer to Fig. 7)

1. Disassembly Procedure

1) Remove the Drum Assy referring to section 3-2.
2) Remove the three screws (M 1.4×2.5) ① and remove the Drum Base Block Assy ②.
3) Remove the screw (M 1.7×1.4) ③ and remove the Shaft Ground ④.

Caution 1: Do not hold the spring portion of the Shaft Ground ④.

Caution 2: The loading motor can be removed while the mechanism is in this state. However, do not move any other mechanical parts (especially gears and cams around the rotary switch) when removing the loading motor. (Refer to 3-11.)

2. Precautions During Re-Assembly

1) Do not touch the spring portion of the Shaft Ground ④.
2) When tightening the three screws (M 1.4×2.5), tighten them in the order of Ⓐ, then Ⓑ, then Ⓒ.
3) After re-assembly is completed, perform the steps in section "4. TAPE PATH ADJUSTMENT".

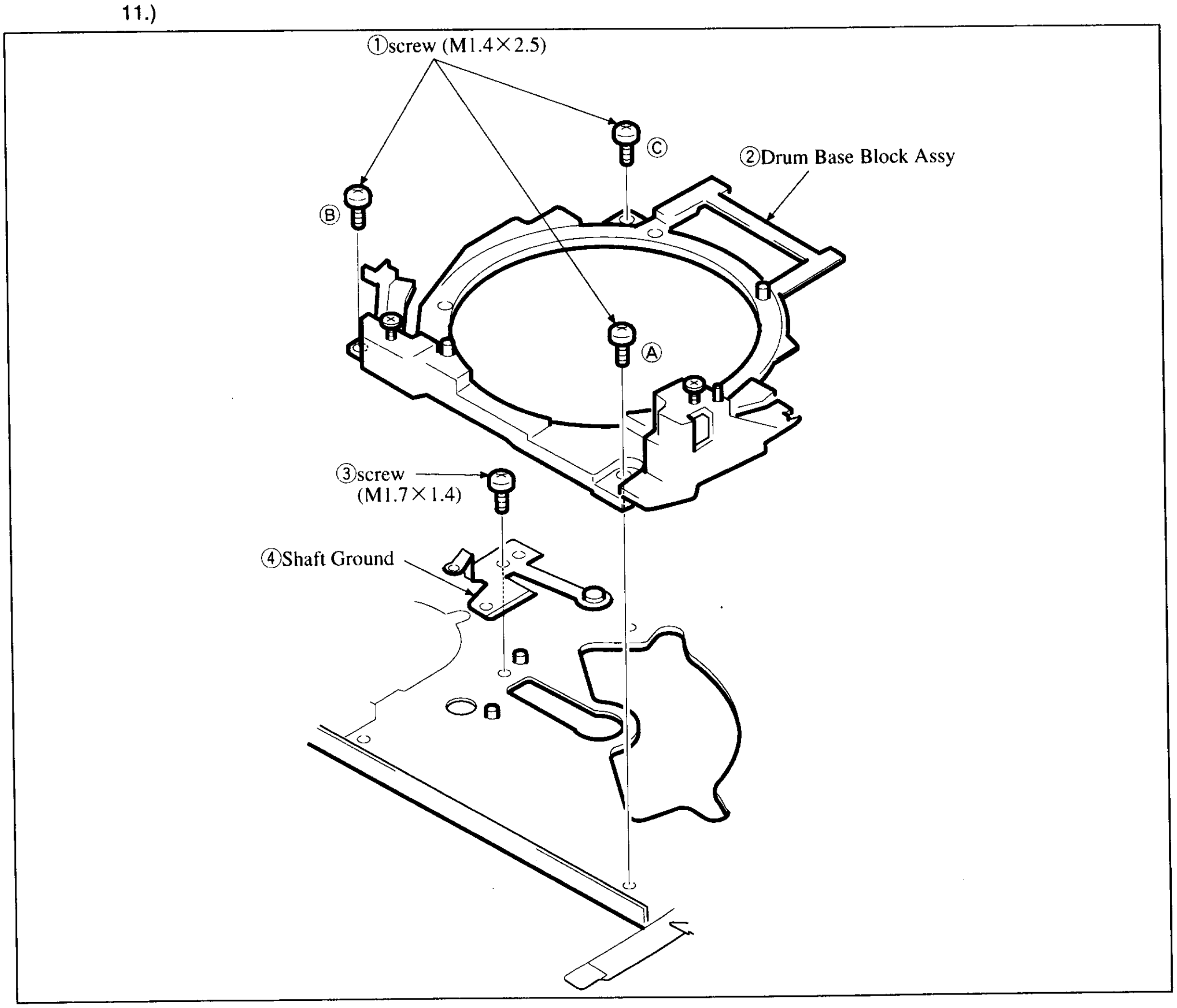


Fig. 7

3-4. Gooseneck Retainer, Gooseneck Gear Assy (Refer to Fig. 8)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the LED ① from the LED holder of the Gooseneck Retainer ③.
(Turn the flexible board 90° outside and remove it upward.)
3) Remove the three screws (M 1.4×2.5) ② and remove the Gooseneck Retainer ③.
4) Remove the stop washer ④ and remove the Gooseneck Gear Assy ⑤.

2. Precautions During Re-Assembly

1) When attaching the Gooseneck Retainer ③, take care that the Gooseneck Retainer ③ does not collide with the tension regulator band. (The tension regulator band must be located inside.)
2) Hook the T-side claw on the guide.

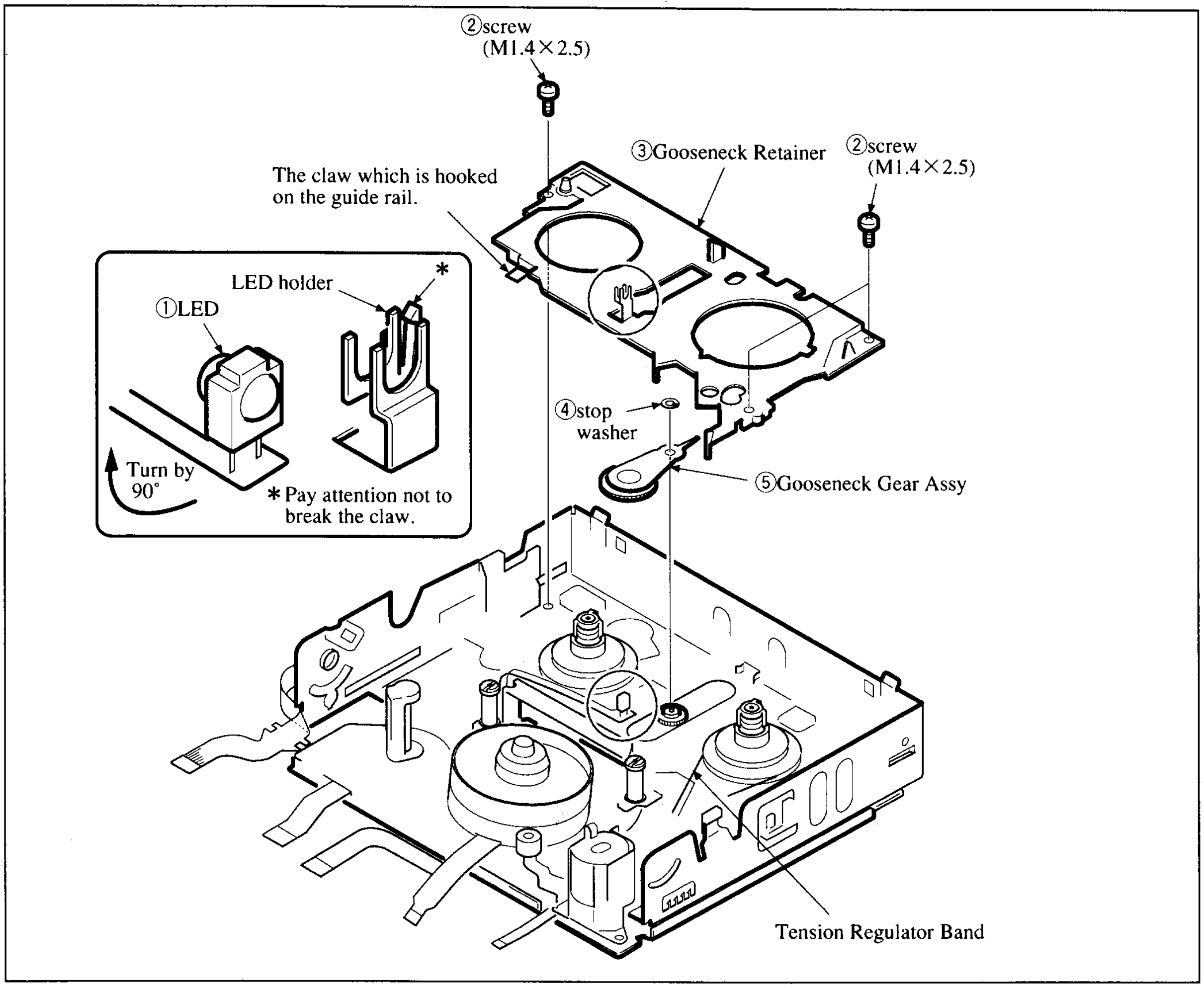

②screw
(M1.4×2.5)
③Gooseneck Retainer
②screw
(M1.4×2.5)
The claw which is hooked on the guide rail.
LED holder
*
①LED
Turn by 90°
* Pay attention not to break the claw.
④stop washer
⑤Gooseneck Gear Assy
Tension Regulator Band

Fig. 8

3-5. LS Chassis Block Assy, Mechanical Chassis Block Assy (Refer to Fig. 9)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the FP-221 flexible board ① from the flexible board holder.
4) Remove the stop ring E1.5 ②.
5) Remove the two screws (M 1.4×2.5) ③ and remove the LS Chassis Block Assy ④ from the Mechanical Chassis Block ⑤ in the direction of the arrow Ⓐ.

Note: The Tension Regulator Plate (2) can easily fall into the Mechanical Chassis Block Assy. Take care not to drop it.

2. Precautions During Re-Assembly

1) Before attaching the LS Chassis Block Assy, confirm that the respective phase-determining holes have been adjusted for correct phase. Also confirm that the specified locations of the Mechanical Chassis Block Assy and the LS Chassis Block Assy are coated with grease SG-055G (Ref. No. J-13). (Refer to Fig. a)
2) When attaching the LS Chassis Block Assy, insert the LS Cam Plate (on the LS chassis side) into the dowel (on the mechanical chassis side). Also insert the TG1 Cam Axis (on the LS chassis side) into the Tension Regulator Plate (2) (on the mechanical chassis side).
3) When attaching these block assemblies, attach them while pressing the TG-1 Arm Assy in the direction toward the TG-2 Guide. (Refer to Fig. b)
4) Pay attention that the TG-1 Arm is not floated.

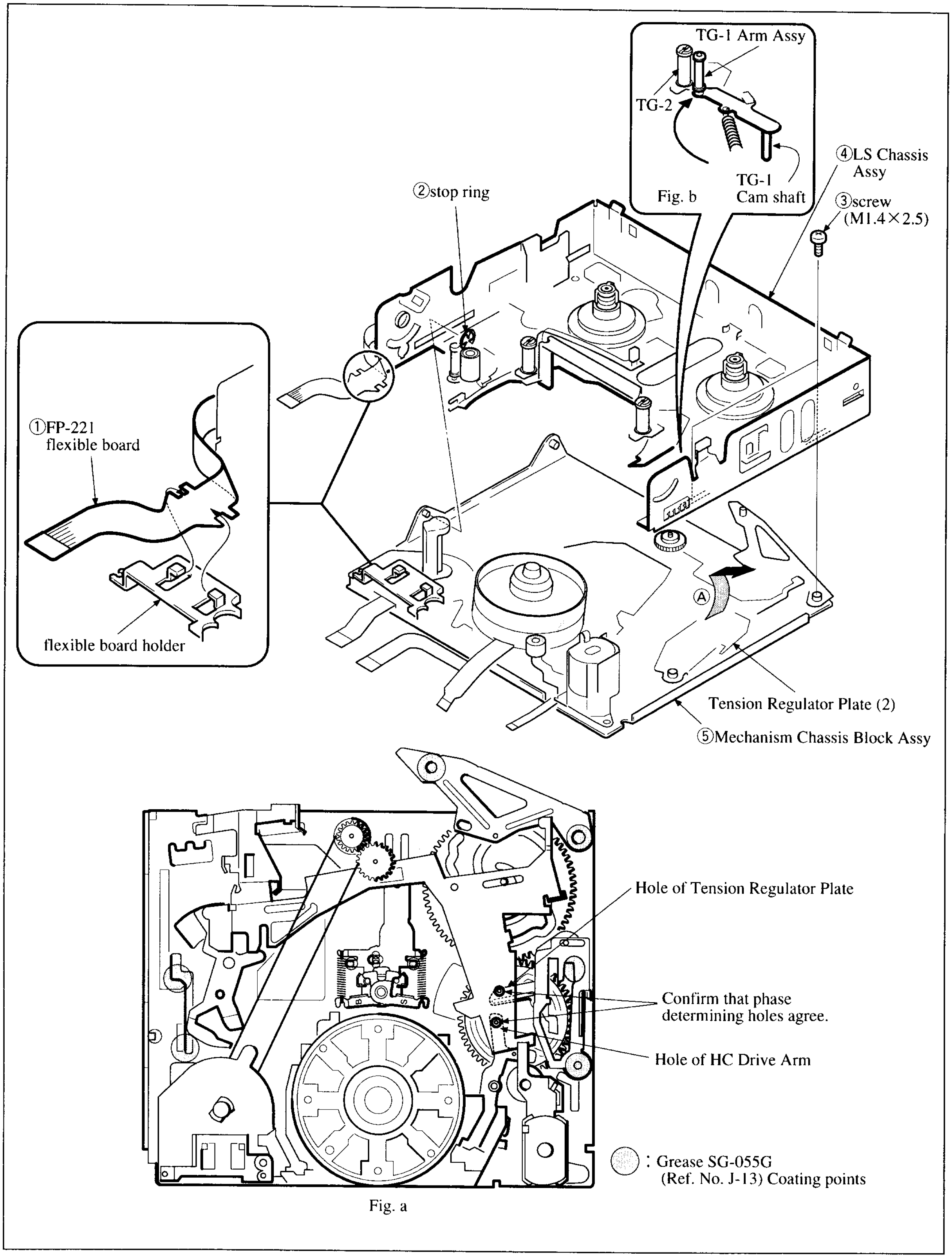

TG-1 Arm Assy
TG-2
TG-1
Cam shaft
Fig. b
④LS Chassis
Assy
③screw
(M1.4×2.5)
②stop ring
①FP-221
flexible board
flexible board holder
Ⓐ
Tension Regulator Plate (2)
⑤Mechanism Chassis Block Assy
Hole of Tension Regulator Plate
Confirm that phase
determining holes agree.
Hole of HC Drive Arm
: Grease SG-055G
(Ref. No. J-13) Coating points
Fig. a

Fig. 9

- **PARTS CONSTITUTING THE LS CHASSIS.**

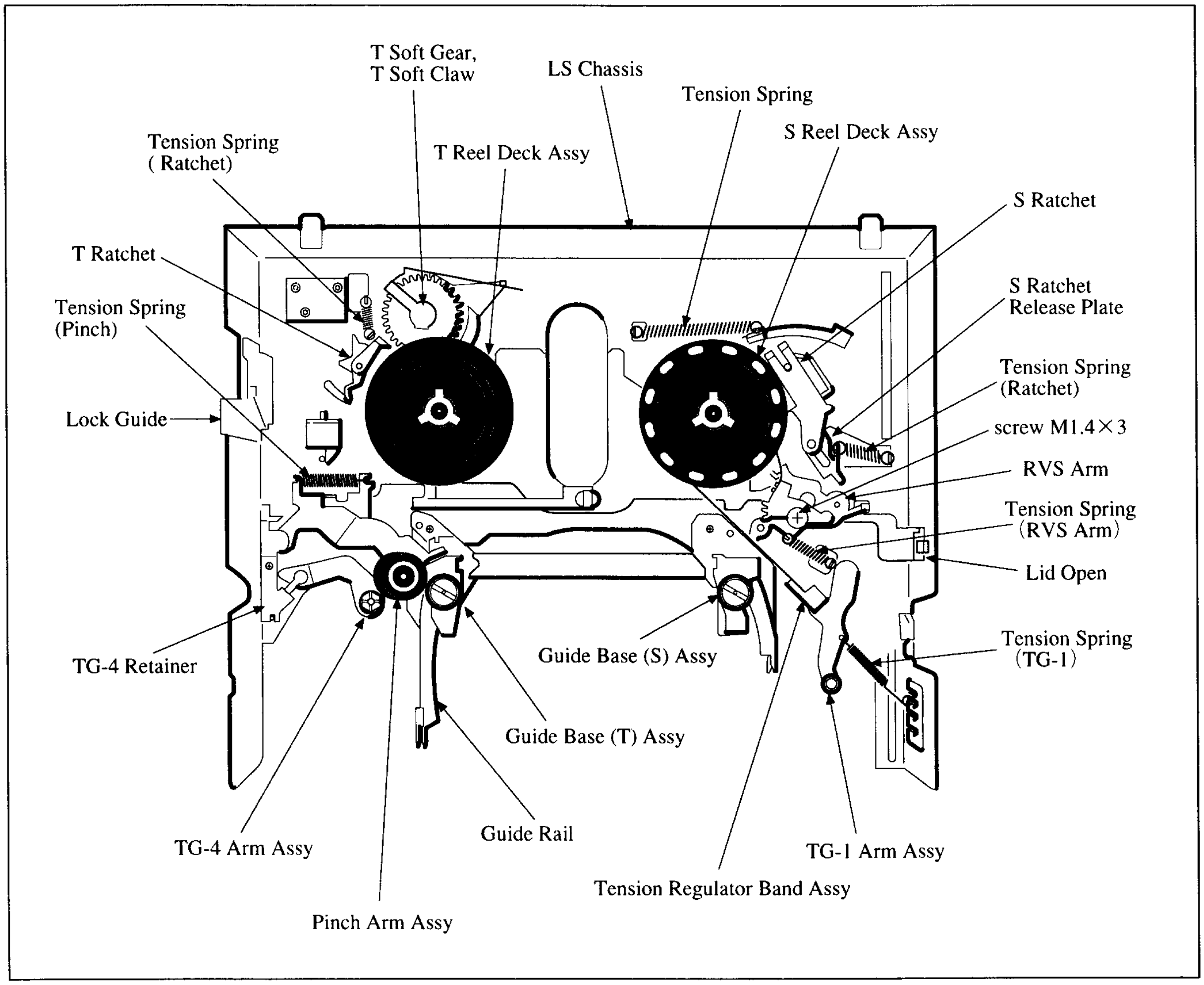

T Soft Gear,
T Soft Claw
LS Chassis
Tension Spring
S Reel Deck Assy
Tension Spring
(Ratchet)
T Reel Deck Assy
S Ratchet
T Ratchet
S Ratchet
Release Plate
Tension Spring
(Pinch)
Tension Spring
(Ratchet)
Lock Guide
screw M1.4×3
RVS Arm
Tension Spring
(RVS Arm)
Lid Open
TG-4 Retainer
Guide Base (S) Assy
Tension Spring
(TG-1)
Guide Base (T) Assy
Guide Rail
TG-4 Arm Assy
TG-1 Arm Assy
Tension Regulator Band Assy
Pinch Arm Assy

Fig. 10

3-6. T Reel Table Assy, T Ratchet, T Soft Gear Block Assy (Refer to Fig. 11)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the claw of the T Reel Deck Assy ① from the chassis and remove the T Reel Deck Assy from its shaft.
4) Remove the Tension Spring (Ratchet) ② from the LS Chassis and turn the T Ratchet ③ in the direction of the arrow Ⓐ and remove it .
5) Turn the T Soft Gear Block Assy ④ in the direction of the arrow Ⓑ and remove it .

2. Precautions During Re-Assembly

1) Confirm that the protrusions of both the T Soft Gear Block Assy and T Ratchet are securely locked to the LS Chassis.
2) Be careful not to deform the claw.

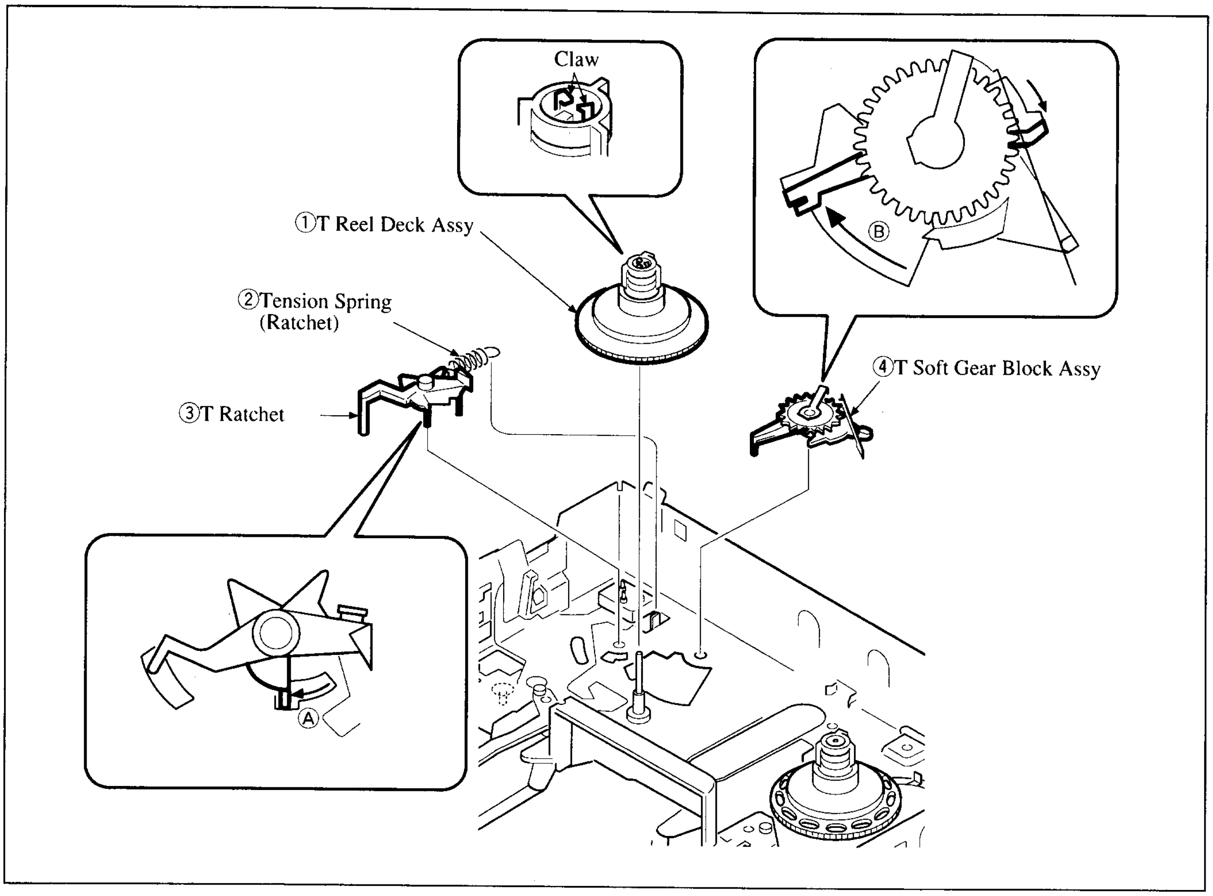


Fig. 11

3-7. Tension Regulator Band Assy, TG1 Arm Assy, S Reel Table Assy, S Ratchet, S Ratchet Release Plate, RVS Arm (Refer to Fig. 12)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the Tension Spring (TG1) ① from the LS Chassis.
4) Remove the screw (M 1.4×3) ② and remove the Tension Adjustment Block of the Tension Regulator Band Assy ④ form RVS Arm.
5) Release the S Ratchet ⑥ in the direction of the arrow Ⓐ and remove the Tension Regulator Band (while taking care not to bend the band) from the S Reel.
6) Remove the TG1 Arm Assy ③ from the LS Chassis, then remove the claw of the Tension Regulator Band Assy ④. (Refer to Fig. a)
7) Remove the claw of the S Reel Deck Assy ⑤ from the chassis and remove the S Reel Deck Assy from its shaft.
8) Remove the S Ratchet ⑥. (Because it is press-fitted, insert tip of screwdriver into the center of rotation and remove it.
9) Remove the Tension Spring (ratchet) ⑦ from the LS Chassis and remove the S Ratchet Release Plate ⑧.
10) Remove the Tension Spring ⑨ from the LS Chassis and remove the RVS Arm ⑩ by turning it..

2. Precautions During Re-Assembly

1) Confirm that the dowel of the S Ratchet Release Plate is inserted into the groove of the S ratchet and confirm that the center of the ratchet is press-fitted into bottom of the shaft. (It can be used again.)
2) When attaching the Tension Regulator Band Assy, take care not to bend it.
3) Pay attention that oil or grease is not spit on the surface of the Tension Regulated Band. (Pay attention also not to touch it with hand directly.)
4) Confirm that the tension regulator band is correctly inserted into the groove of the S Reel Deck Assy ⑤. (Refer to Fig. b)
5) When securing the Tension Adjustment Block using the screw, press it toward the position which gives the least tension, then tighten the fixing screw.
6) Before attaching the TG1 Arm Assy, coat the LS Chassis TG1 boss with oil (1/2 drop).
7) Do not touch the tape guide of the TG1 Arm Assy with bare hands.
8) Confirm that the claw of the S Reel Deck Assy is not deformed.

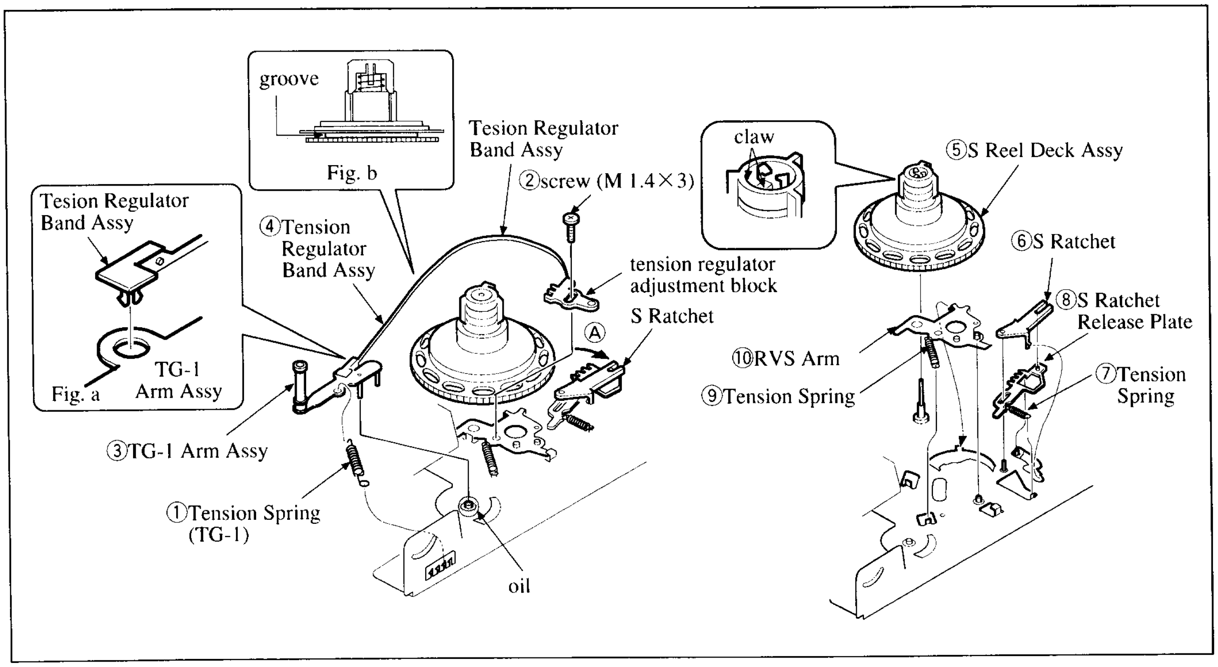

groove
Fig. b
Tesion Regulator Band Assy
②screw (M 1.4×3)
claw
⑤S Reel Deck Assy
Tesion Regulator Band Assy
④Tension Regulator Band Assy
⑥S Ratchet
tension regulator adjustment block
S Ratchet
Ⓐ
⑧S Ratchet Release Plate
⑩RVS Arm
TG-1 Arm Assy
Fig. a
⑨Tension Spring
⑦Tension Spring
③TG-1 Arm Assy
①Tension Spring (TG-1)
oil

Fig. 12

3-8. Pinch Arm Assy, TG4 Arm Block Assy (Refer to Fig. 13)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the Torsion Spring (pinch) ① from an end of Pinch Arm and hook it on the cut-out Ⓐ of the LS Chassis.
5) Remove the screw (M 1.4×2.5) ② and remove the TG4 Retainer ③.
6) Remove the TG4 Arm Block Assy ④ and remove the Torsion Spring ⑤ while paying attention to the Torsion Spring ⑤.
7) Remove the Pinch Arm Assy ⑥. (Caution: The Pinch Press Roller is easy to drop. Pay attention not to drop it.)
8) Remove the Torsion Spring (pinch) ① from the cut-out of the LS Chassis in the order of Ⓐ then Ⓑ.

2. Precautions During Re-Assembly

1) Before attaching these parts, coat the LS chassis pinch arm boss and TG4 arm boss with grease SG-055G (Ref. No. J-13).
2) Do not touch the tape guide of the TG4 Arm Block Assy and roller of the Pinch Arm Assy with bare hand.
3) After coating the Pinch Press Shaft of the Pinch Arm Assy ③ with grease SG-055G (Ref. No. J-13), attach the Pinch Press Roller.

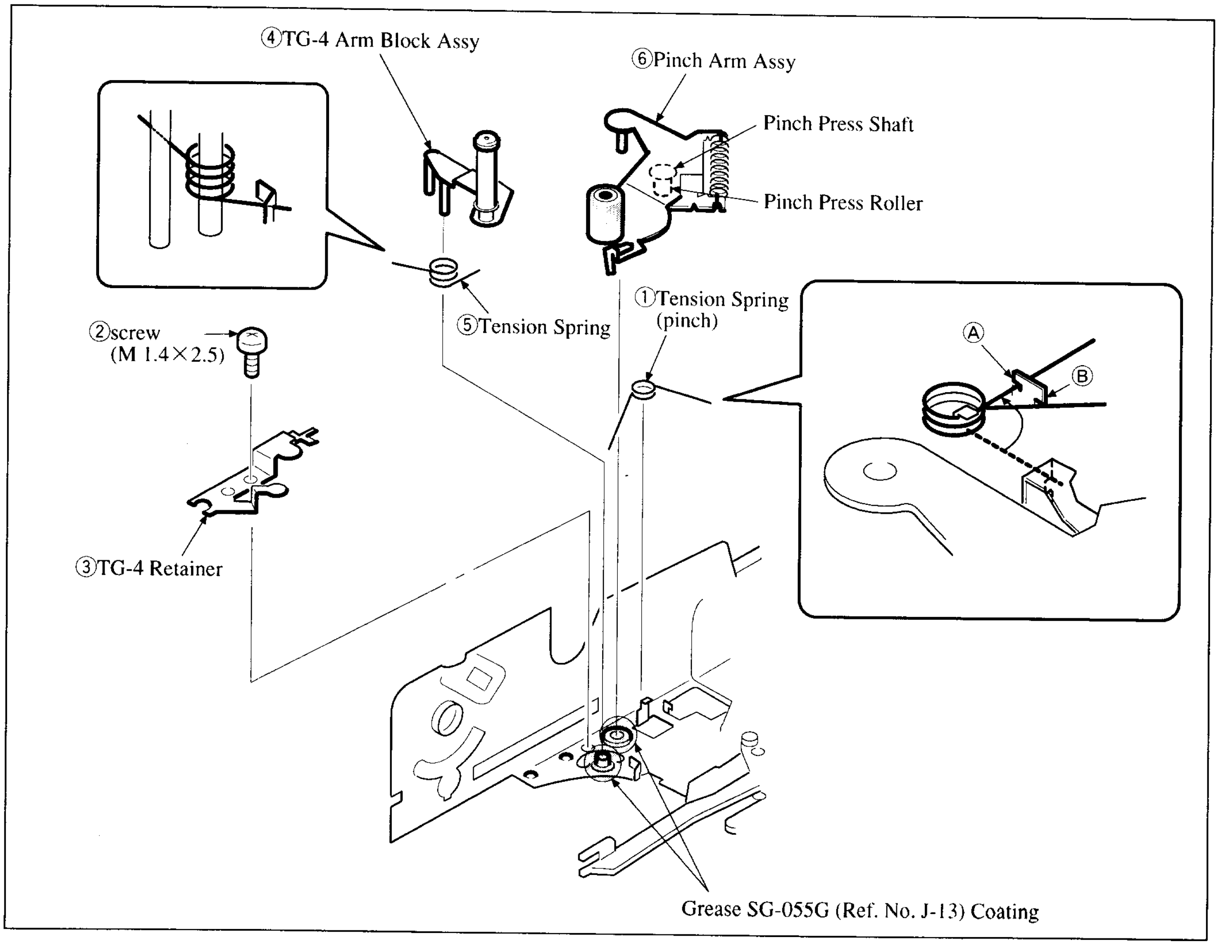

④TG-4 Arm Block Assy
⑥Pinch Arm Assy
Pinch Press Shaft
Pinch Press Roller
⑤Tension Spring
①Tension Spring (pinch)
②screw (M 1.4×2.5)
③TG-4 Retainer
Ⓐ
Ⓑ
Grease SG-055G (Ref. No. J-13) Coating

Fig. 13

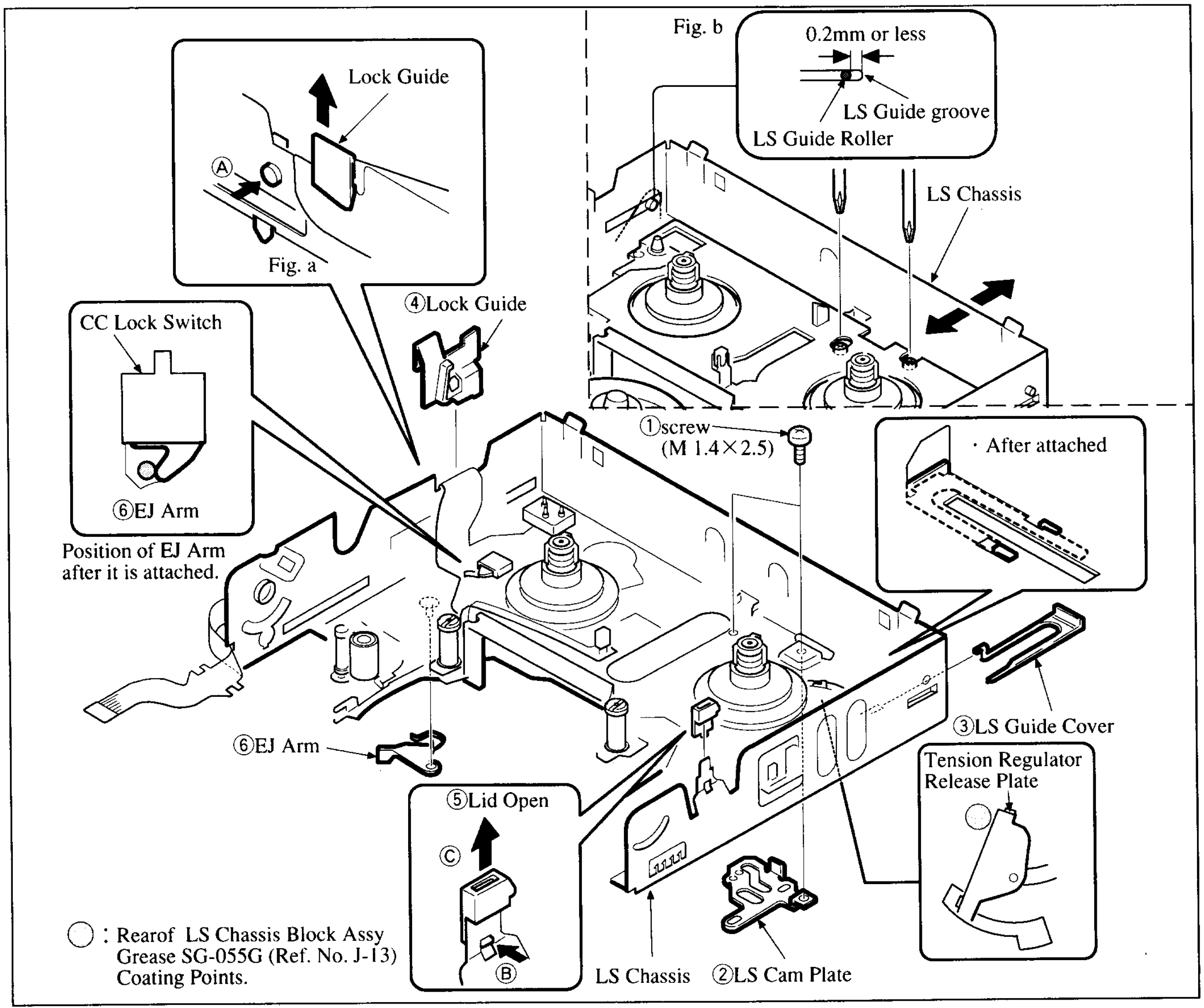
3-9. LS Cam Plate, LS Guide Cover, Lid Opener, EJ Arm, Lock Guide
(Refer to Fig. 14)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) Remove the two screws (M 1.4×2.5) ① and remove the the LS Cam Plate ②.
In this state, write a mark on the screw ① and on the LS Chassis indicating the position of the LS Cam Plate which helps during re-assembly.
5) Remove the LS Guide Cover ③.
6) Remove the Lock Guide ④ in the upward direction. (Refer to Fig. a)
7) Remove the Lid Open ⑤ in the direction of the arrow Ⓒ while pushing Ⓑ portion .
8) Remove the EJ Arm ⑥ . (The EJ Arm ⑥ is press-fitted. If the EJ Arm ⑥ is not damaged, it is not necessary to replace.)

2. Precautions During Re-Assembly

1) After the captioned parts are attached, confirm that the respective claws and dowels are engaged completely.
2) If the EJ Arm ⑥ is removed, be sure to replace it with the new replacement EJ Arm.
3) If any mark is not written when removing the LS Cam Plate ②, adjust and attack it as shown in Fig. b.


Lock Guide
Ⓐ
Fig. a
④Lock Guide
CC Lock Switch
⑥EJ Arm
Position of EJ Arm after it is attached.
Fig. b
0.2mm or less
LS Guide groove
LS Guide Roller
LS Chassis
①screw (M 1.4×2.5)
· After attached
③LS Guide Cover
Tension Regulator Release Plate
⑥EJ Arm
⑤Lid Open
Ⓒ
Ⓑ
LS Chassis
②LS Cam Plate

○ : Rearof LS Chassis Block Assy Grease SG-055G (Ref. No. J-13) Coating Points.

Fig. 14

3-10. Guide Base (S) and (T) Block Assemblies, Guide Rail (Refer to Fig. 15)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
3) Remove the LS Chassis Block Assy referring to section 3-5.
4) While pushing the GB Stoppers (S) and (T) in the direction of arrow Ⓐ, press the guide arm in the direction of the arrow Ⓑ, and turn the Guide Base (S) and (T) Block Assemblies : ① and ② in the direction of the arrow Ⓒ respectively, and remove them.
5) Remove the two screws (M 1.4×2.5) ③ and remove the the Guide Rail Assy ④.
6) Remove the Stopper (S) and (T) : ⑤ and ⑥, then remove the GB Stopper S and T: ⑦ and ⑧.

2. Precautions During Re-Assembly

1) Pay attention not to deform the Guide Rail.
2) Do not touch the tape guide of the Guide Base (S) and (T) Block Assemblies with bare hand.
3) Pay attention not to deform the Stoppers (S) and (T).
4) When attaching the Guide Base (S) and (T) Blocks to the Guide Rail, move back the Guide Bases until the GB Stoppers (S) and (T) are locked. ("Click" sounds.)
5) After the captioned parts are attached, perform section "4. TAPE PATH ADJUSTMENT".

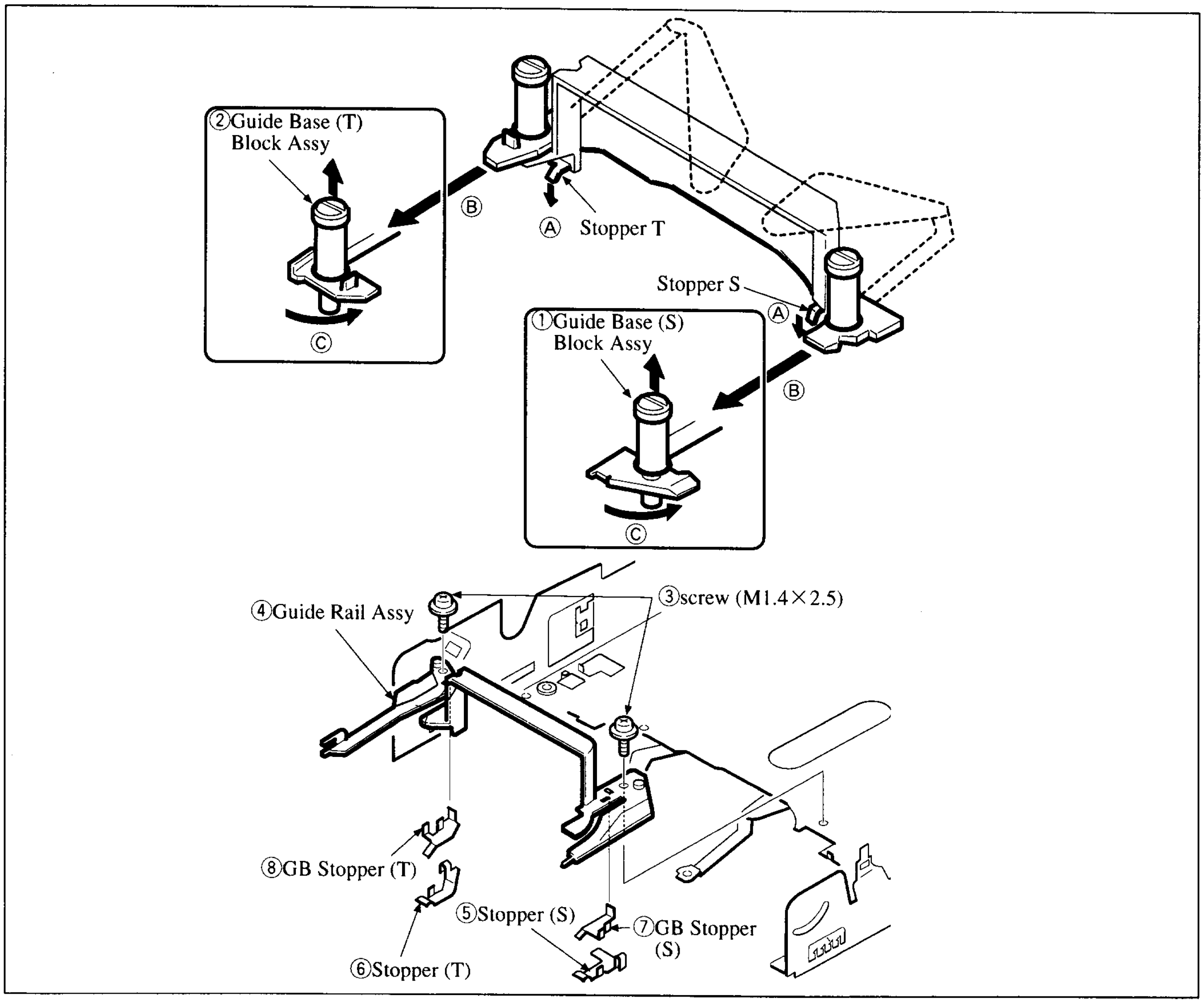

②Guide Base (T)
Block Assy
Ⓑ
Ⓒ
Ⓐ Stopper T
Stopper S
Ⓐ
①Guide Base (S)
Block Assy
Ⓑ
Ⓒ
④Guide Rail Assy
③screw (M1.4×2.5)
⑧GB Stopper (T)
⑤Stopper (S)
⑦GB Stopper (S)
⑥Stopper (T)

Fig. 15

- **PARTS CONSTITUTING THE MECHANISM CHASSIS**

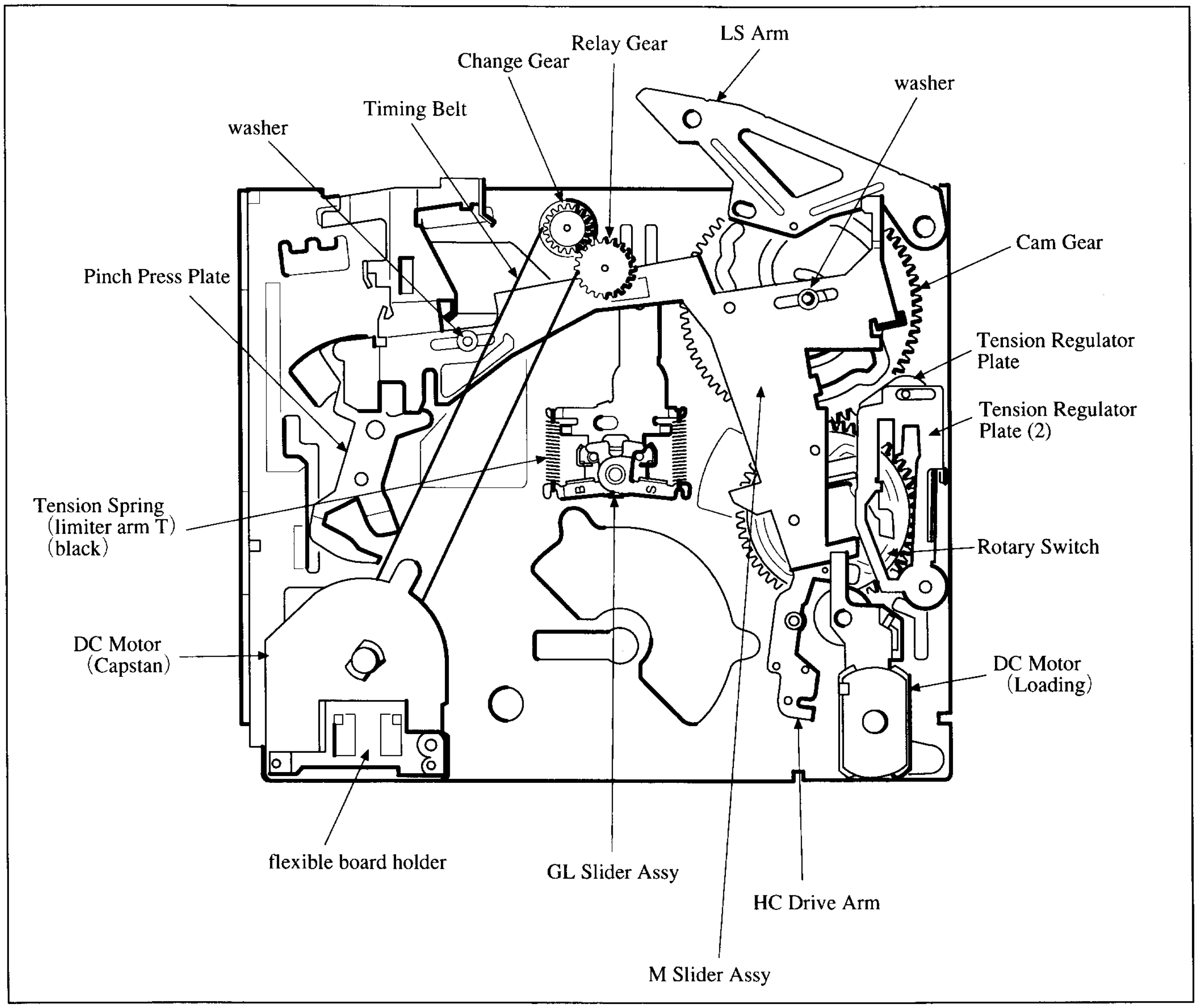

Relay Gear
LS Arm
Change Gear
washer
Timing Belt
washer
Cam Gear
Pinch Press Plate
Tension Regulator Plate
Tension Regulator Plate (2)
Tension Spring (limiter arm T) (black)
Rotary Switch
DC Motor (Capstan)
DC Motor (Loading)
flexible board holder
GL Slider Assy
HC Drive Arm
M Slider Assy

Fig.16

3-11. DC Motor Assy (Loading)
(Refer to Fig. 17)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove soldering from the Ⓐ portion.
8) Remove the screw (M 1.4×2.5) ① and remove the Motor Holder Block Assy ② from the mechanism chassis along with the claw beneath the Motor Holder Block Assy as shown by the arrow Ⓑ.
9) Remove the Motor Shield ③ in the direction of the arrow Ⓒ (by opening the two ★ star marked points).
10) Release the claw on top of the Motor Holder ⑤ and remove the DC Motor Assy ④ in the direction of the arrow Ⓓ.
11) Remove the Motor Holder Sleeve ⑥, Gear A⑦ and Worm Shaft ⑧ in this order.

2. Precautions During Re-Assembly

1) Before attaching the Gear A ⑥, coat the Retainer Shaft Ⓔ with grease SG-055G (Ref. No. J-13).
2) After assembling the Motor Holder Block Assy, coat the six locations shown by Fig. a with grease SG-055G (Ref. No. J-13).
3) The HC Drive Arm is easy to drop. Confirm that it is attacked referring to Fig. 19.

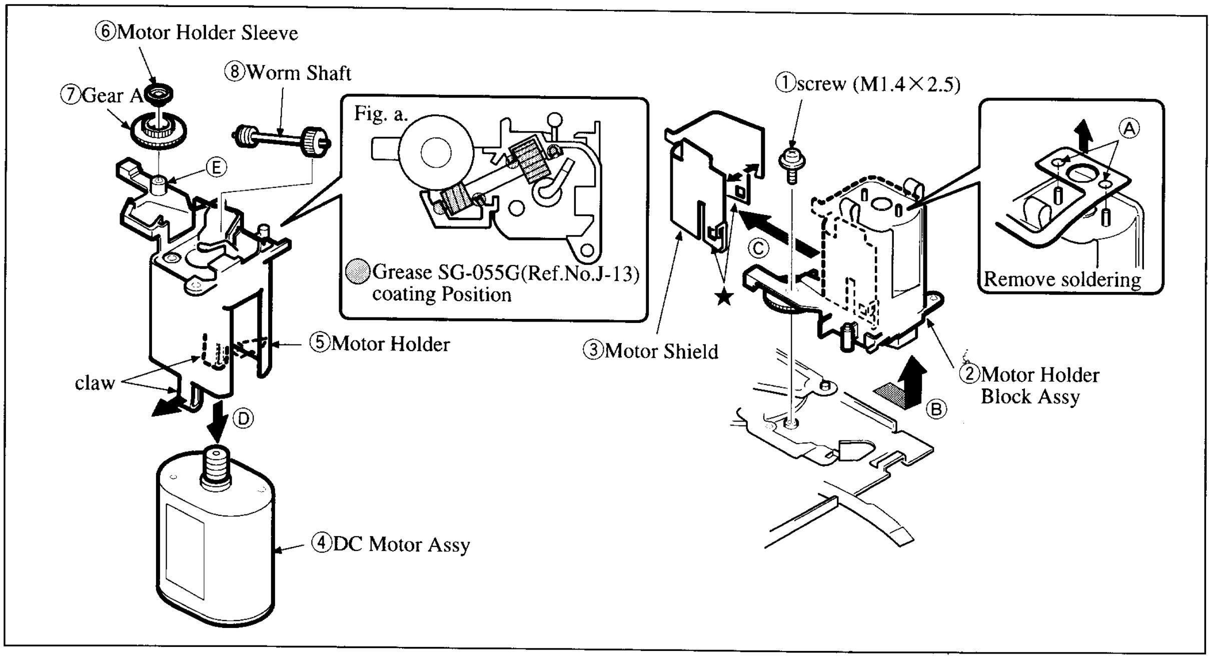

⑥Motor Holder Sleeve
⑧Worm Shaft
⑦Gear A
Ⓔ
Fig. a.
●Grease SG-055G(Ref.No.J-13) coating Position
⑤Motor Holder
claw
Ⓓ
④DC Motor Assy
①screw (M1.4×2.5)
Ⓒ
★
③Motor Shield
Ⓐ
Remove soldering
②Motor Holder Block Assy
Ⓑ

Fig. 17

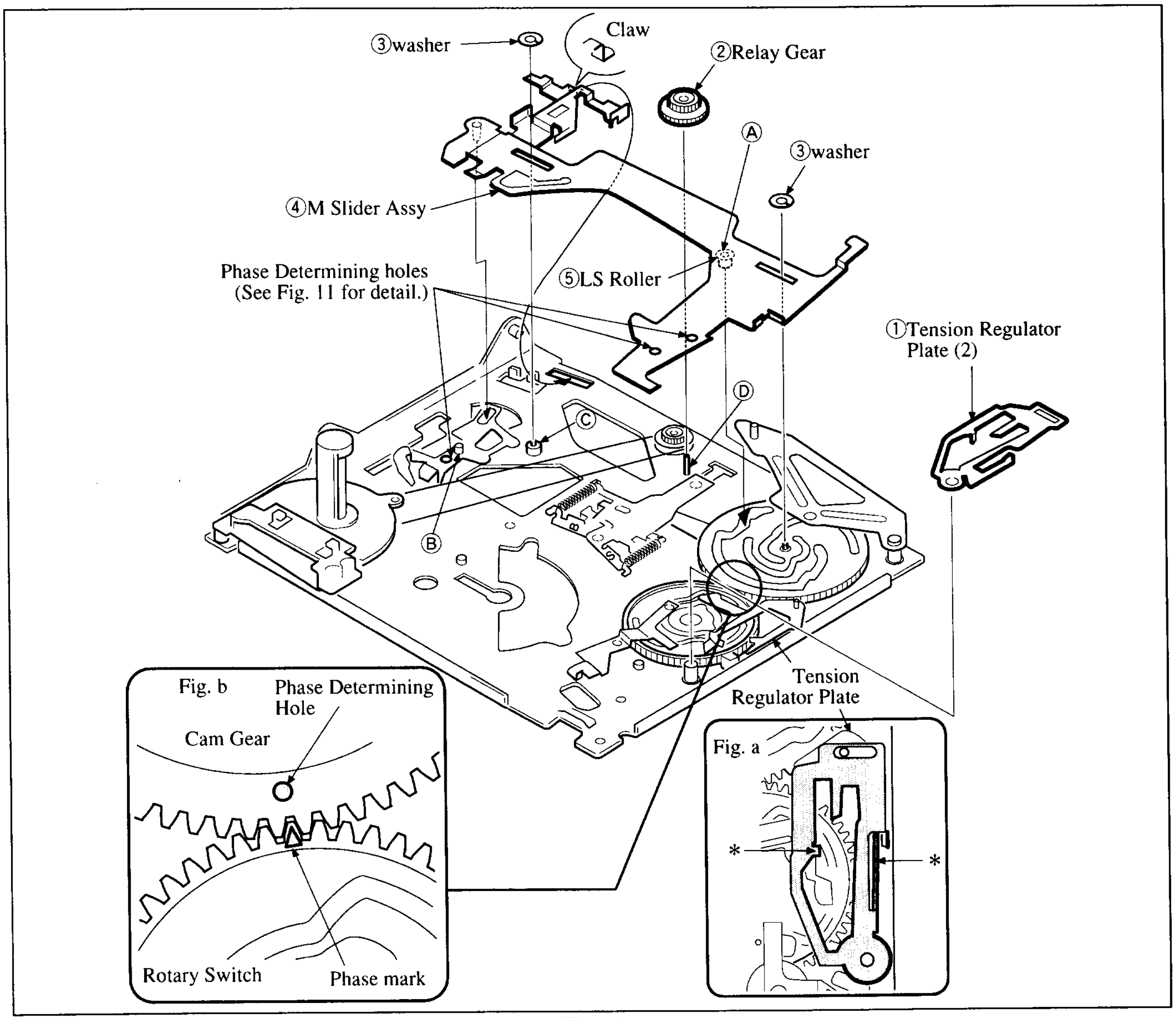
3-12. Tension Regulator Plate 2, Relay Gear, M Slider Assy (Refer to Fig. 18)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC motor referring to section 3-11.
8) Remove the Tension Regulator Plate 2 ①.
9) Remove the Relay Gear ②.
10) Remove the two washers ③. Remove the M Slider Assy ④. At the point, confirm that the LS Roller ⑤ is not dropped.

2. Precautions During Re-Assembly

1) Before attaching the M Slider Assy ④, coat the LS Roller Shaft Ⓐ on the back of the M Slider Assy, the Pinch Press Plate Shaft Ⓑ and the mechanism chassis M Slider Axis Ⓒ with grease SG-055G (Ref. No. J-13). (Refer to Fig. b)
2) While confirming the phase-determining holes, attach the M Slider Assy ④ while paying attention to the claw.
3) Attach the Tension Regulator Plate 2 ① inside the Tension Regulator Plate. (Refer to the asterisk ＊Marked portion of Fig. a)
4) Before attaching the Relay Gear ②, coat the mechanism chassis Relay Gear Axis Ⓓ with grease SG-055G (Ref. No. J-13).



③washer
Claw
②Relay Gear
Ⓐ
③washer
④M Slider Assy
Phase Determining holes (See Fig. 11 for detail.)
⑤LS Roller
①Tension Regulator Plate (2)
Ⓒ
Ⓓ
Ⓑ
Tension Regulator Plate
Fig. b
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Fig. a
＊
＊

Fig. 18

3-13. LS Arm, HC Drive Arm, Pinch Press Plate, Tension Regulator Plate (Refer to Fig. 19)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm ①. At this point, confirm that the LS Roller ② is not dropped.
10) Remove the HC Drive Arm ③, Pinch Press Plate ④ and Tension Regulator Plate ⑤.

2. Precautions During Re-Assembly

1) Before attaching the captioned parts, confirm that phases of the Cam Gear and the Rotary Switch agree. (See Fig. a.)
2) Insert the dowel of the Tension Regulator Plate ⑤ into the groove outside the rotary switch.
3) Before attaching the Pinch Press Plate ④, check for grease on the mechanism chassis Pinch Press Plate Shaft Ⓐ. If grease cannot be found, coat it with grease SG-055G (Ref. No. J-13). After attaching the Pinch Press Plate ④, align its phase hole until it agrees with the phase-determining hole on the mechanism chassis.
4) Insert the dowel of the HC Drive Arm ③ into the groove inside the rotary switch.
5) Before attaching the LS Arm ①, coat the LS roller shaft of the LS Arm ① with grease SG-055G (Ref. No. J-13).

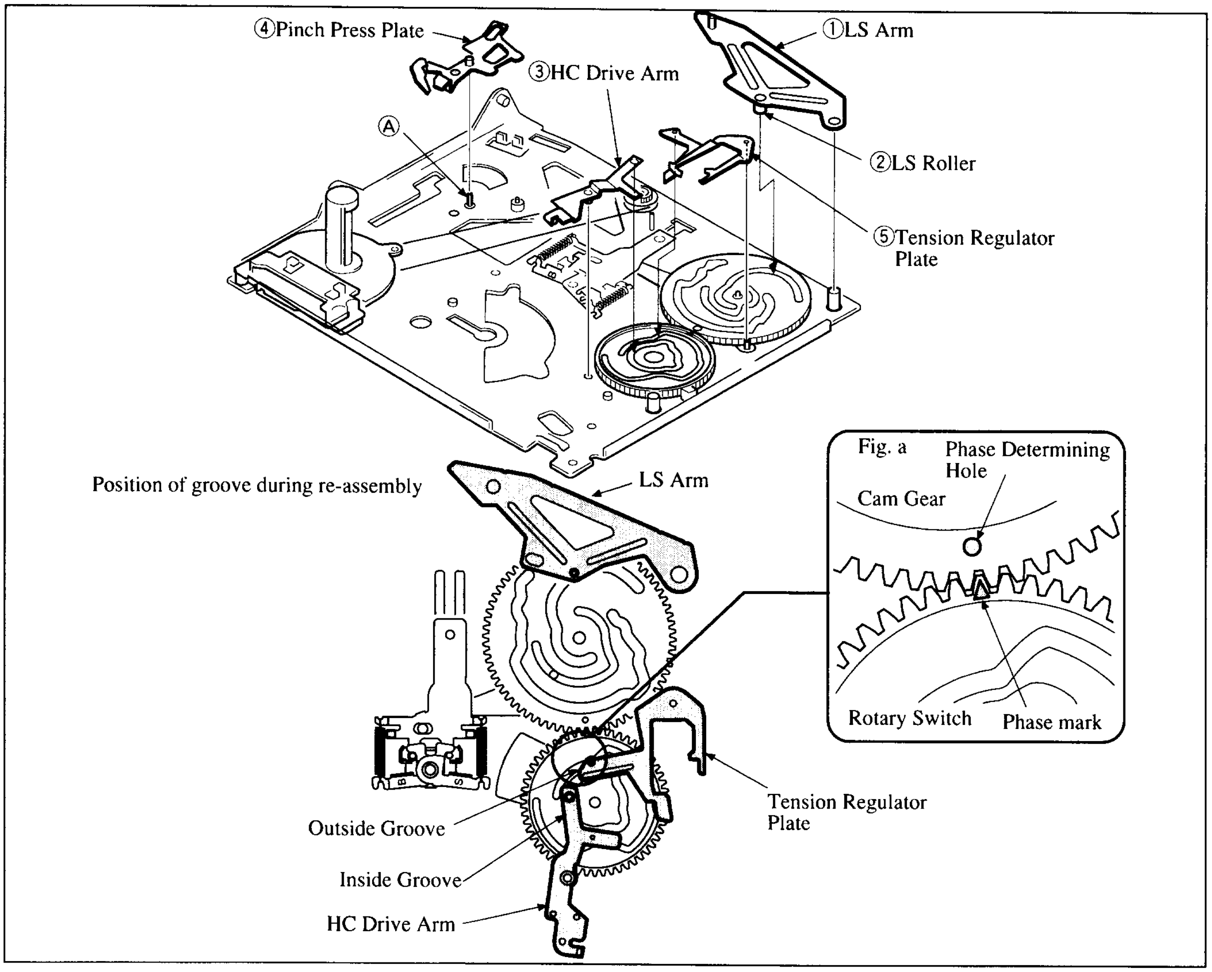

④Pinch Press Plate
③HC Drive Arm
①LS Arm
Ⓐ
②LS Roller
⑤Tension Regulator Plate
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
Position of groove during re-assembly
LS Arm
Tension Regulator Plate
Outside Groove
Inside Groove
HC Drive Arm

Fig. 19

3-14. Cam Gear (Refer to Fig. 20)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear ①.

2. Precautions During Re-Assembly

1) Before attaching the Cam Gear ①, align the phase mark on the rotary switch until it agrees with the phase-determining hole Ⓐ on the mechanism chassis, and align the GL Arm's phase mark Ⓑ until it agrees with the phase-determining hole Ⓐ on the mechanism chassis. Coat the mechanism's chassis Gear Axis Ⓐ with grease SG-055G (Ref. No. J-13).
2) Attach the Cam Gear ① so that its phase hole agrees with the phase mark on the rotary switch. (Refer to Fig. a)
3) After the Cam Gear ① is attached, coat the GL Arm Axis Block of the cam gear with grease SG-055G (Ref. No. J-13).

Reference : The phase marks of the Cam Gear and Rotary Switch can also be checked from the rear side of mechanism chassis. It means that the phase can be confirmed after mechanism deck is fully re-assembled.

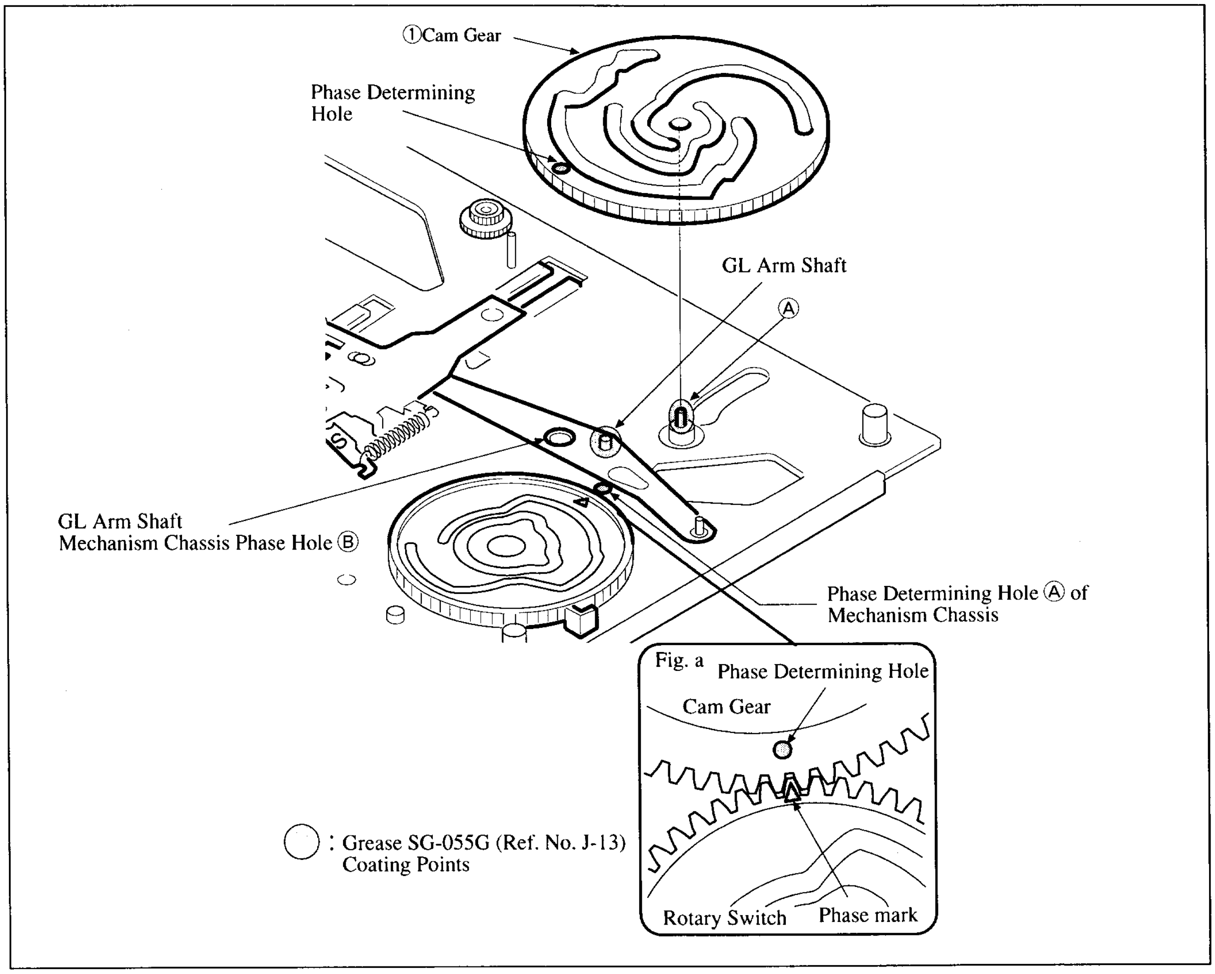

①Cam Gear
Phase Determining Hole
GL Arm Shaft
Ⓐ
GL Arm Shaft
Mechanism Chassis Phase Hole Ⓑ
Phase Determining Hole Ⓐ of Mechanism Chassis
Fig. a
Phase Determining Hole
Cam Gear
Rotary Switch
Phase mark
○ : Grease SG-055G (Ref. No. J-13) Coating Points

Fig. 20

3-15. GL Slider Assy, GL Arm (Refer to Fig. 21)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm and Tension Regulator Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove the GL Slider Assy ① by sliding it in the direction of the arrow Ⓐ.
12) Remove the GL Arm ②.

2. Precautions During Re-Assembly

1) The Tension Spring T③ is colored black and the Tension Spring S④ is colored silver.
2) Coat the position shown in Fig. a of the GL Slider Assy ① with grease SG-055G (Ref. No. J-13).
3) Coat the four points Ⓑ where GL slider is attached on the mechanism chassis with grease SG-055G (Ref. No. J-13).
4) After attaching the GL Arm ② and the GL Slider Assy, align the GL arm phase hole until it agrees with the phase-determining hole on the mechanism chassis.

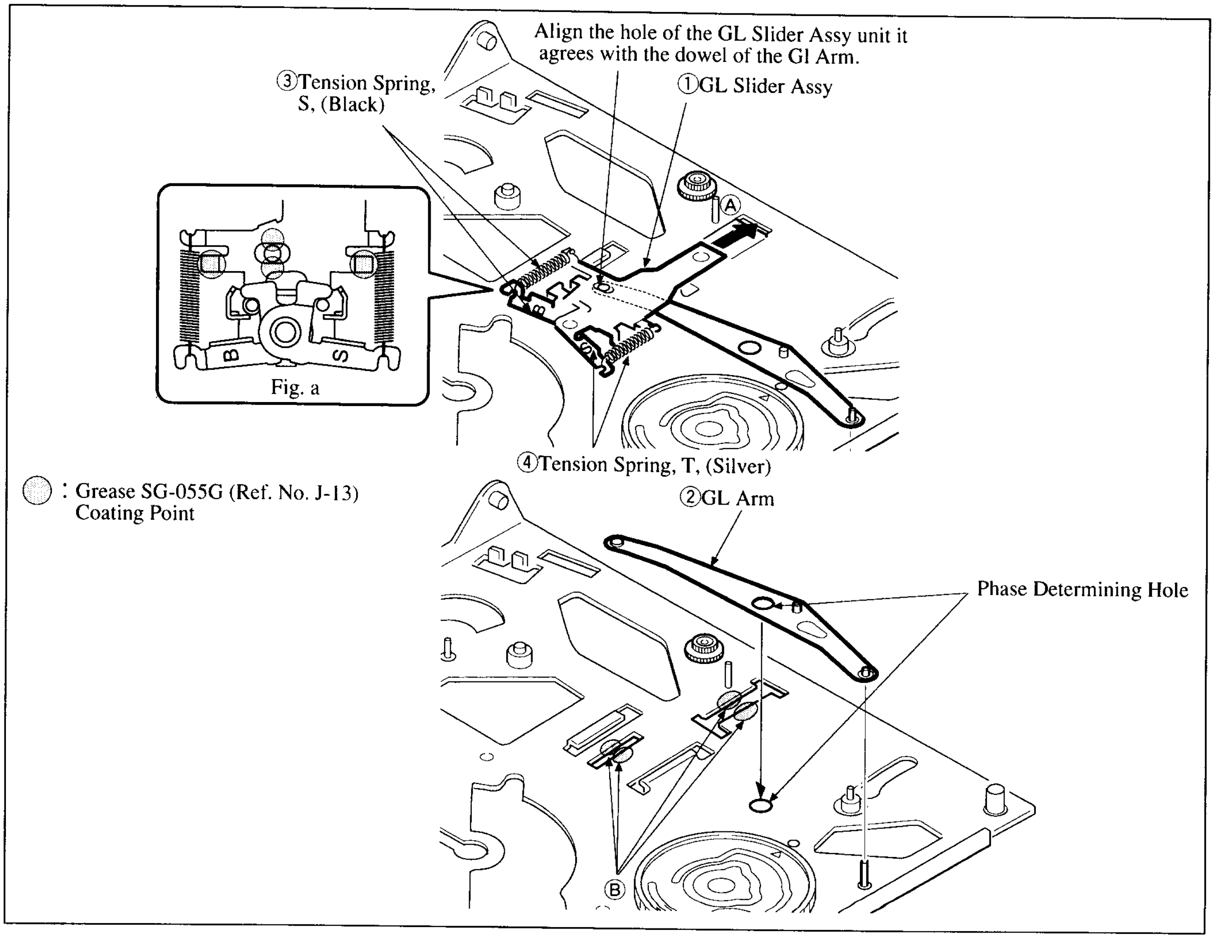

Align the hole of the GL Slider Assy unit it agrees with the dowel of the Gl Arm.
③Tension Spring, S, (Black)
①GL Slider Assy
Ⓐ
B
S
Fig. a
④Tension Spring, T, (Silver)
○ : Grease SG-055G (Ref. No. J-13) Coating Point
②GL Arm
Phase Determining Hole
Ⓑ

Fig. 21

3-16. Rotary Switch (Refer to Fig. 22)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the LS Arm, Tension Regulator Plate, HC Drive Arm and Pinch Press Plate referring to section 3-13.
10) Remove the Cam Gear referring to section 3-14.
11) Remove soldering the portion Ⓐ on the rear of the Rotary Switch. (Pay attention at this moment that the GL Slider and GL Arm do not drop.)
12) While lifting up the portion Ⓑ about 1 mm (pay attention not to break it), hold the portion Ⓒ and turn it in the direction of the arrow Ⓓ to remove the Rotary Switch.

2. Precautions During Re-Assembly

1) Before attaching the Rotary Switch by soldering on the FP-220 board, insert the portion Ⓑ dowel into the hole on the mechanism chassis. Confirm that the three claws are engaged with the mechanism chassis.

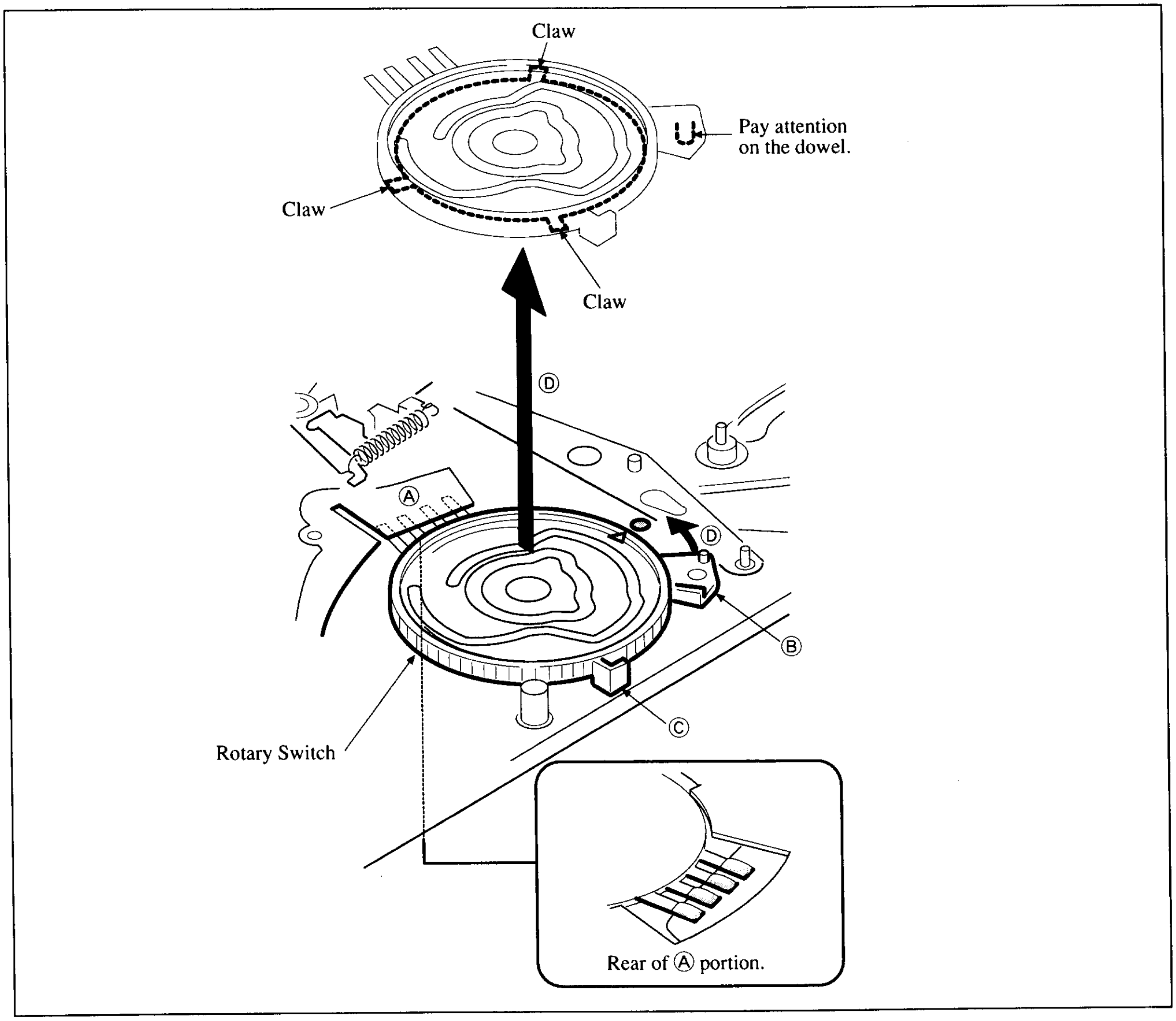


Fig. 22

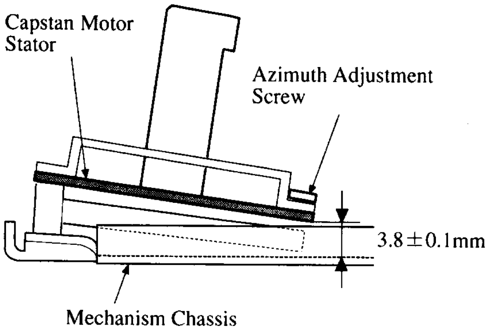
3-17. Capstan Motor (Refer to Fig. 23)

1. Disassembly Procedure

1) Remove the Cassette Compartment Block Assy referring to section 1-1.
2) Remove the HC Roller Block Assy referring to section 3-1.
3) Remove the Drum Assy referring to section 3-2.
4) Remove the Drum Base Block Assy referring to section 3-3.
5) Remove the Gooseneck Retainer and Gooseneck Gear Assy referring to section 3-4.
6) Remove the LS Chassis Block Assy referring to section 3-5.
7) Remove the DC Motor Assy referring to section 3-11.
8) Remove the Tension Regulator Plate 2, Relay Gear and M Slider Assy referring to section 3-12.
9) Remove the Pinch Press Plate referring to section 3-13.
10) Remove the screw (M 1.4×6.7) ① and remove the Flexible Board Holder ②.
11) Remove the two screws (M 1.4×6.7) ③ and remove the Capstan Motor ④, Timing Belt ⑤ and Capstan Spacer ⑥.
12) Remove the washer ⑦ and remove the Changer Gear ⑧.

2. Precautions During Re-Assembly

1) Confirm that the timing belt is not twisted.
2) Do not touch the capstan with bare hand.
3) Lubricate the mechanism chassis's Change Gear shaft Ⓐ.
4) After attaching the Capstan Motor, perform the capstan azimuth adjustment.


Capstan Motor Stator
Azimuth Adjustment Screw
3.8±0.1mm
Mechanism Chassis

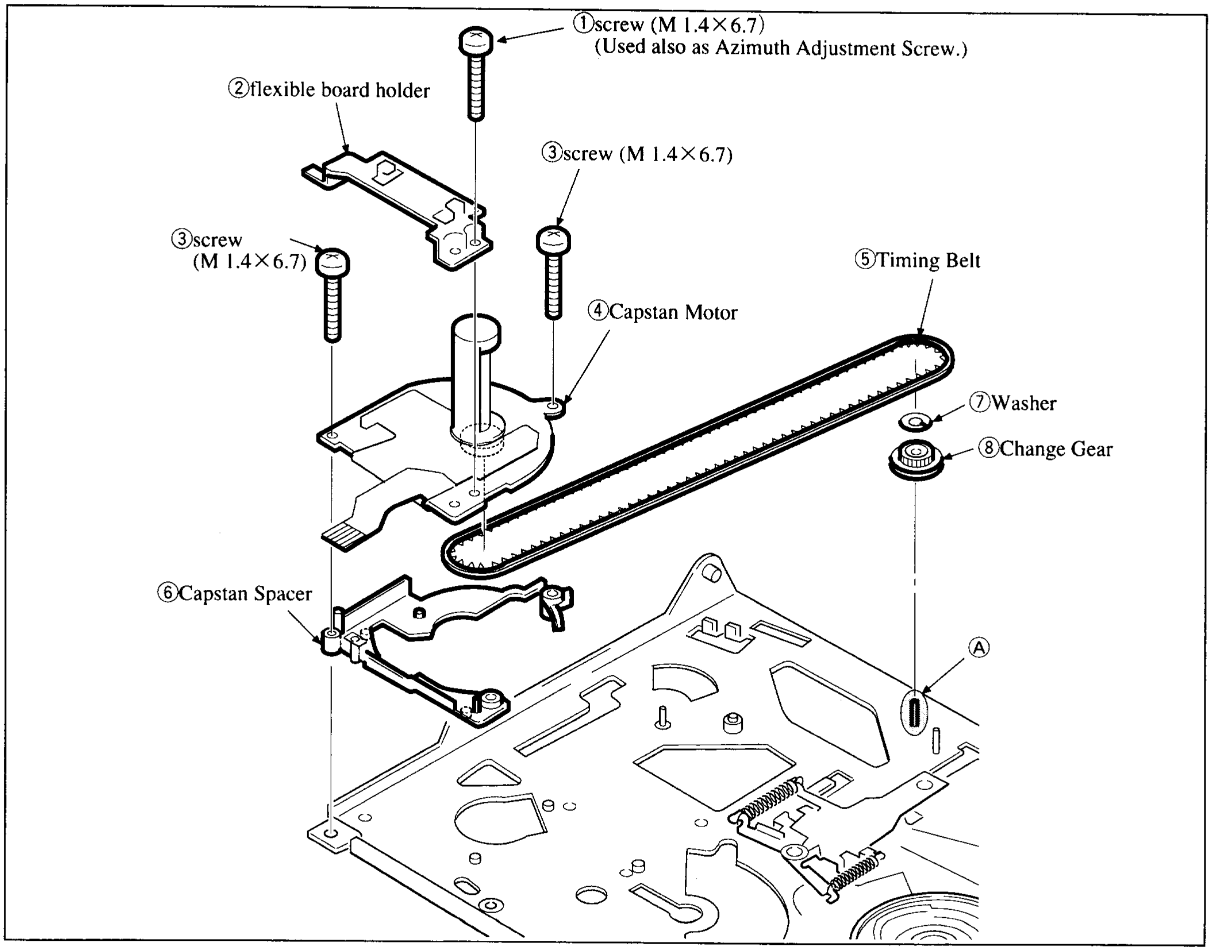

①screw (M 1.4×6.7)
(Used also as Azimuth Adjustment Screw.)
②flexible board holder
③screw (M 1.4×6.7)
③screw
(M 1.4×6.7)
⑤Timing Belt
④Capstan Motor
⑦Washer
⑧Change Gear
⑥Capstan Spacer
Ⓐ

Fig. 23

3-18. Tension Regulator Position Adjustment (Refer to Fig.24)

1. Adjustment Procedure

1) Insert a cassette Tape and run the Tape in PB mode.
2) While tape is running, confirm that the distance between the LS Chassis and TG-1 Guide's top flange is 8.3mm.
3) If not, proceed to step 4).
4) Loosen the screw ① (M 1.4×3).
5) If the TG-1 Guide is located inside the specified position, move position of the Tension Regulator Band Assy using the FWD B.T. Adjustment tool screwdriver (Ref. No. J-9) as shown in the direction of the arrow Ⓐ. If it is located outside, move it in the direction of the arrow Ⓑ.
6) Tighten the screw ① (M 1.4×3).

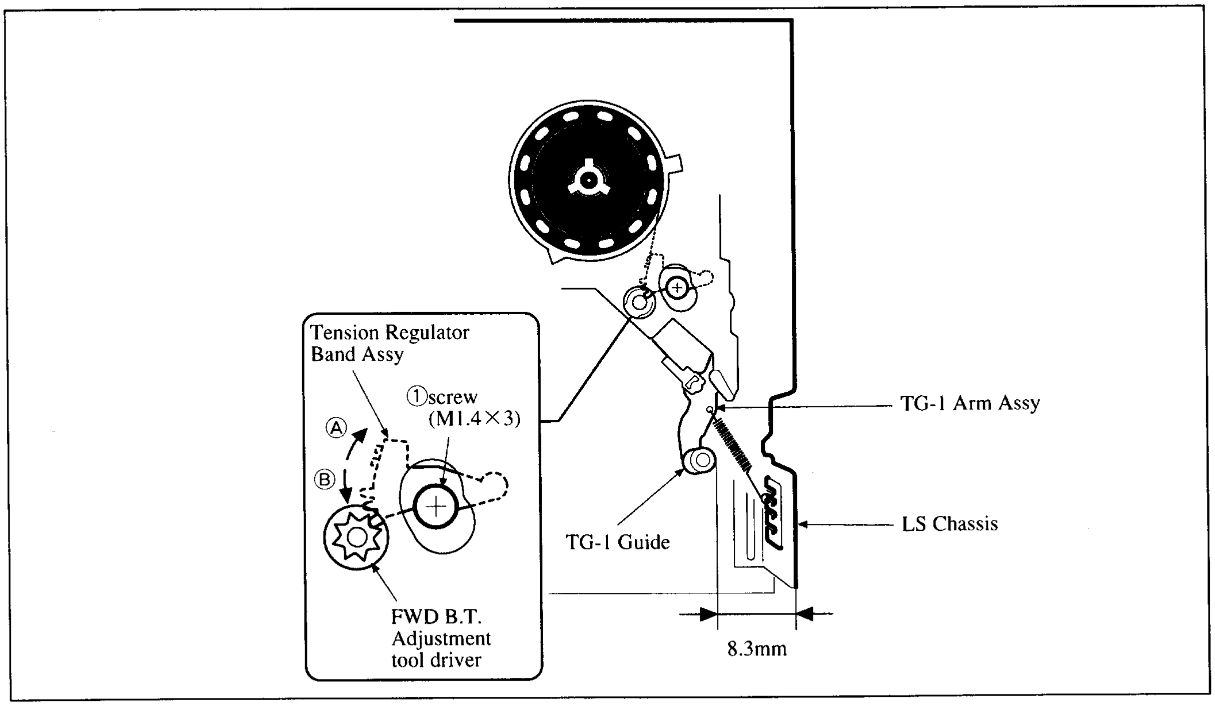

Tension Regulator Band Assy
①screw (M1.4×3)
Ⓐ
Ⓑ
FWD B.T. Adjustment tool driver
TG-1 Guide
TG-1 Arm Assy
LS Chassis
8.3mm

Fig.24

3-19. FWD Tape Hold-Back Tension Adjustment (Refer to Fig. 25)

1. Adjustment Procedure

1) Insert the torque measurement cassette to the machine.
2) Put the machine in the FWD mode. Confirm that the reading on the S side is in the range from 8.0 to 10.5 g•cm. If the reading is outside the specification range, make the following adjustments.
3) If the reading is higher than the specification, change the TG-1 Tension Spring to the side Ⓐ.
4) If the reading is lower than the specification, change the TG-1 Tension Spring to the side Ⓑ.

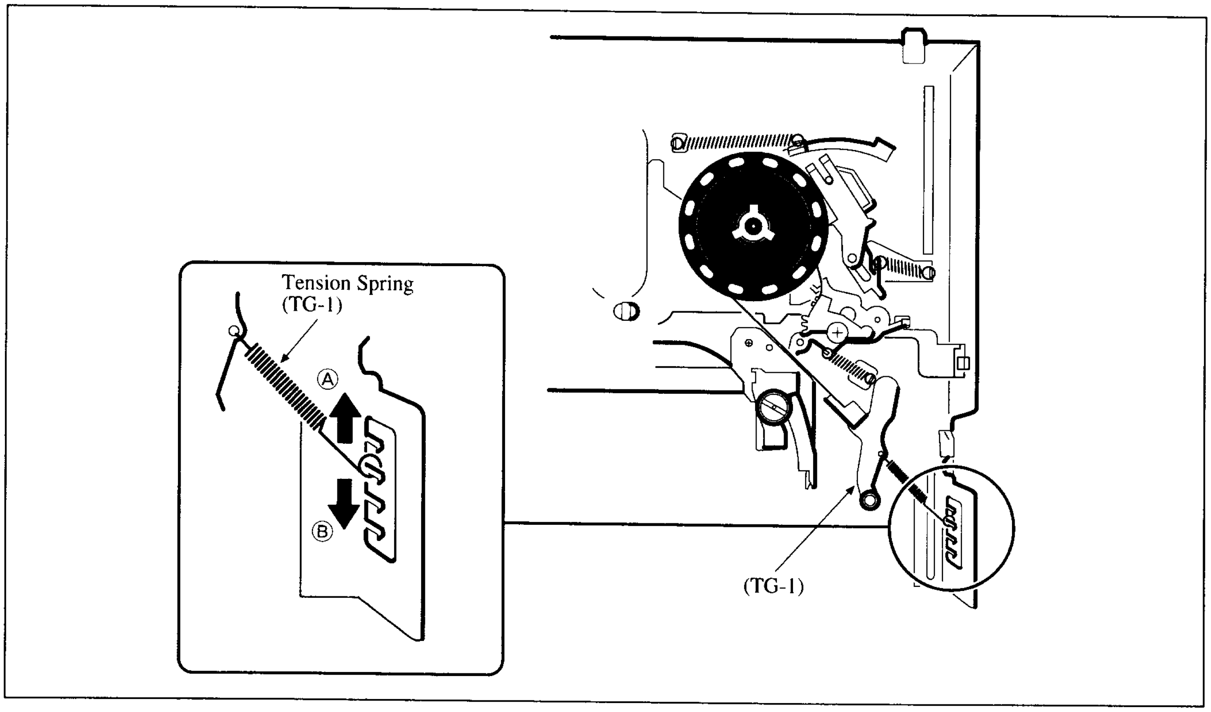


Fig. 25

4. TAPE PATH ADJUSTMENT

Purpose:	Adjusts the head linearity.
Adjustment Error:	Noise appears on top and bottom of display when playing back the tape recorded by other machines.

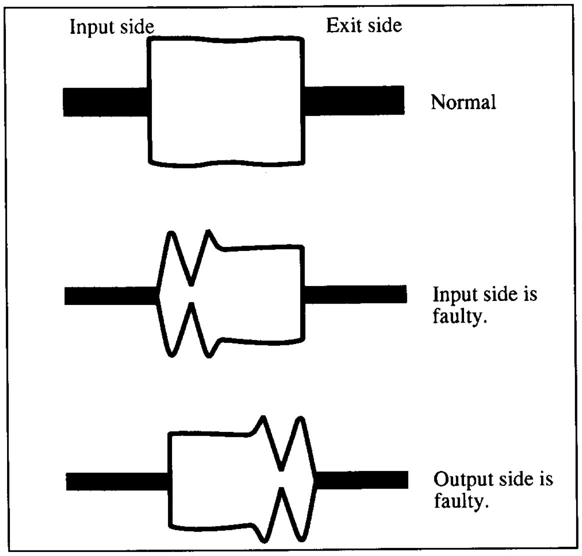


Fig. 26

4-1. Preparations for Adjustments

1) Clean the tape running surface (tape guide, drum, capstan, pinch roller).
2) Connect the adjustment remote commander to the REMOTE terminal (JACK block).
3) Establish the PATH mode using the adjustment remote commander (Track Shift mode)* to cancel auto tracking.
4) Connect an oscilloscope.
   CH1: Test connector PB RF terminal
   External trigger: Test connector PB SWP terminal
5) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
6) Check to see that RF waveform is flat at input and exit sides on oscilloscope.
   If it not flat, perform the following section 4-2 until it is flat.
7) After completing the adjustment, release the PATH mode (Track Shift mode).*.

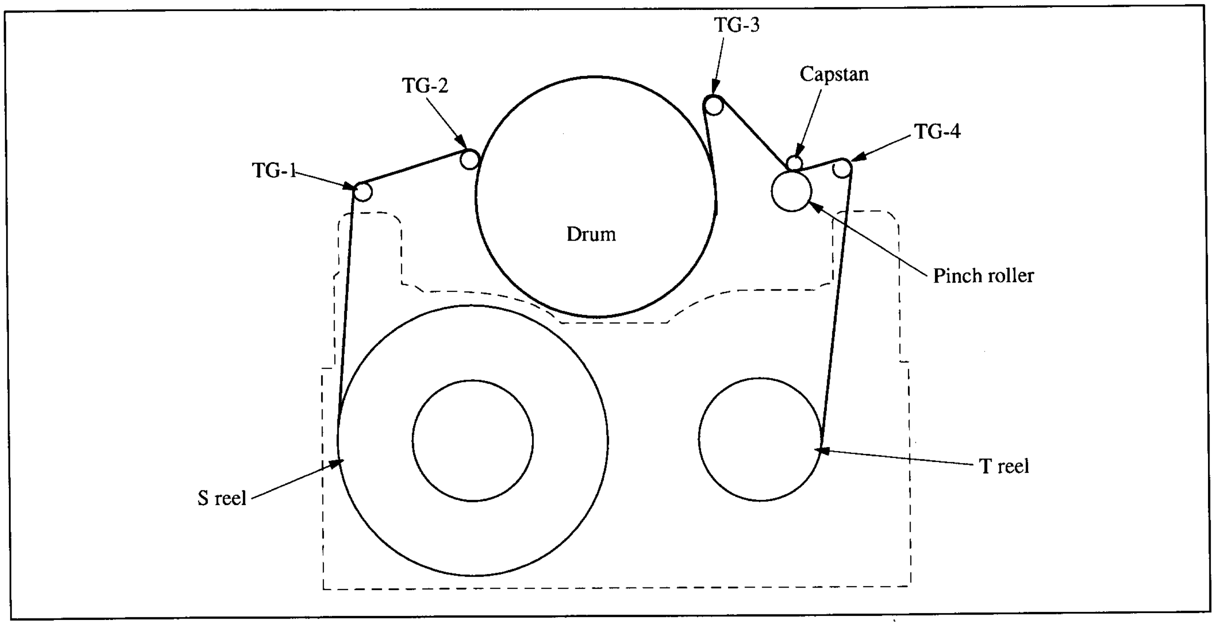


Fig. 27

* How to enter and exit the Track Shift mode. (In the case of CCD-TR420E/TR440E)

Entering the Track Shift mode

1. Select page : 6, address : 00 set data : 01 and press the PAUSE button.
2. Select page : 7, address : 01 set data : 03 and press the PAUSE button.

Exitting the Track Shift mode

1. Select page : 7, address : 01 set data : 00 and press the PAUSE button.
2. Select page : 6, address : 00 set data : 00 and press the PAUSE button.

4-2. Tracking Adjustment (Refer to Fig. 28.)

1) Playback the tracking alignment tape WR5-1NP (NTSC) or WR5-1CP (PAL) (Ref. No. J-6).
2) Adjust the tape guide No. 2 until the input side waveform becomes flat.
3) Adjust the tape guide No. 3 until the input side waveform becomes flat.

☆ Zenith adjustment screws for the TG-2 and TG-3 do not need to be adjusted.

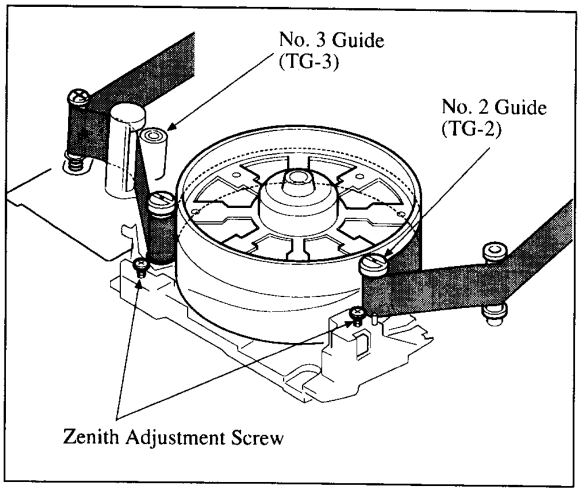


Fig. 28

4-3. No. 4 Guide (TG-4) Adjustment (Refer to Fig. 29.)

1) Playback a tape in REV mode.
2) Confirm that tape slack does not occur in between the guide No. 3 (TG-3) ① and Capstan ②. If tape slack is found, turn the height adjustment screw ④ of the Guide No. 4 (TG-4) ③ until tape slack is removed.
3) Playback a tape in FWD mode. Confirm that tape slack does not occur in between the guide No. 4 (TG-4) ③ and capstan ②. (Specification = 0.5 mm or less) If tape slack of more than 0.5 mm is found, turn the TG-4 nut ④ until the slack is 0.5 mm or less. Playback tape in REV mode and confirm that tape slack in between the guide No. 3 (TG-3) ① and capstan ② is 0.3 mm or less, the adjustment is complete.

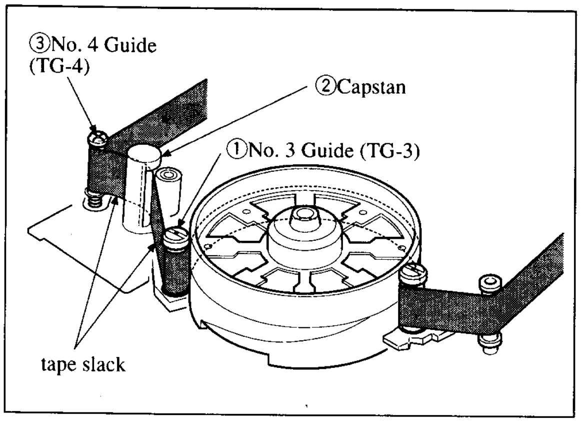


Fig. 29

4-4. CUE, REV Waveforms Check (Refer to Fig. 30.)

1) Playback the tracking alignment tape in REV mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform sections "4-2. Tracking Adjustment" and section "4-3. No. 4 Guide Adjustment".
2) Playback the tracking alignment tape in CUE mode.
   Confirm that pitches between the peaks of the waveform are equally spaced for 5 seconds or longer.
   The pitches are not equally spaced, perform section "4-2. Tracking Adjustment".

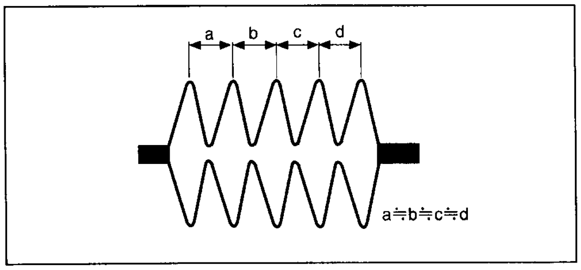


Fig. 30

4-5. Checks After Adjustments

4-5-1. Tracking Check

1) Confirm that amplitude of the RF waveform decreases to about 3/4 when the machine enters the PATH mode. (Refer to Fig. 31)
2) Confirm that the minimum amplitude (EMIN) of the RF waveform is 65 % or more of the maximum amplitude (EMAX). (Refer to Fig. 32)
3) Confirm that the RF waveform does not have too much fluctuation. (Refer to Fig. 33)

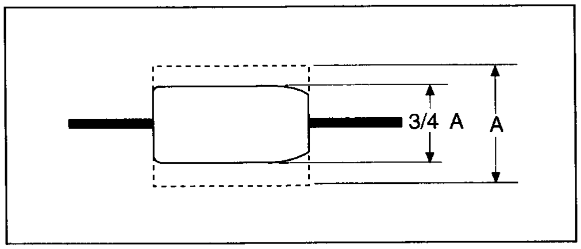


Fig. 31

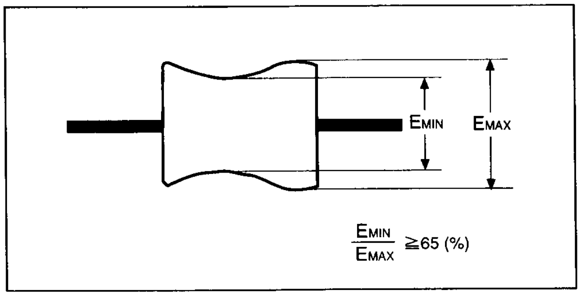


Fig. 32

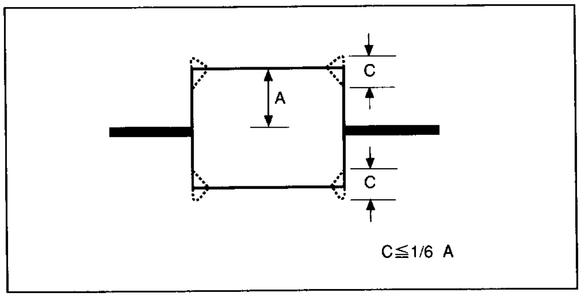


Fig. 33

4-5-2. Waveform Build-up Check (Refer to Fig. 34.)

1) Playback the tracking alignment tape.
2) Turn OFF the Track Shift mode.
3) Eject the tape once, insert and load the tape.
4) Start playing back the tape and confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
5) Playback the tape in CUE/REV and FF/REW modes respectively. Confirm that the RF waveform builds up in three seconds with flat envelope. Confirm at this time that tape slack does not occur near pinch roller.
6) Repeat the check items 3) to 5) again.

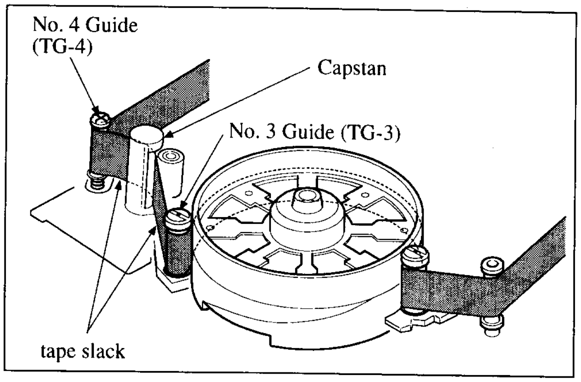


Fig. 34

4-5-3. Tape Pass Check (Refer to Fig. 35.)

1) Insert a thin video tape such as P6-120MP (NTSC) or P5-120MP (PAL). Playback the thin tape. Confirm that there is no clearance or curl of 0.3 mm or more at the following points: Upper flange of guide No. 2, upper flange of guide No. 3, upper and lower flanges of guide No. 4.
2) Confirm that there is no clearance or curl of 0.3 mm or more at each tape guide when the FF button is pressed from the playback mode to enter the CUE mode, and when the REW button is pressed from the playback mode to enter the REV mode.

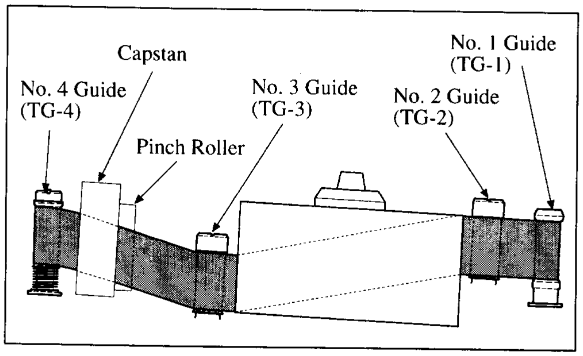
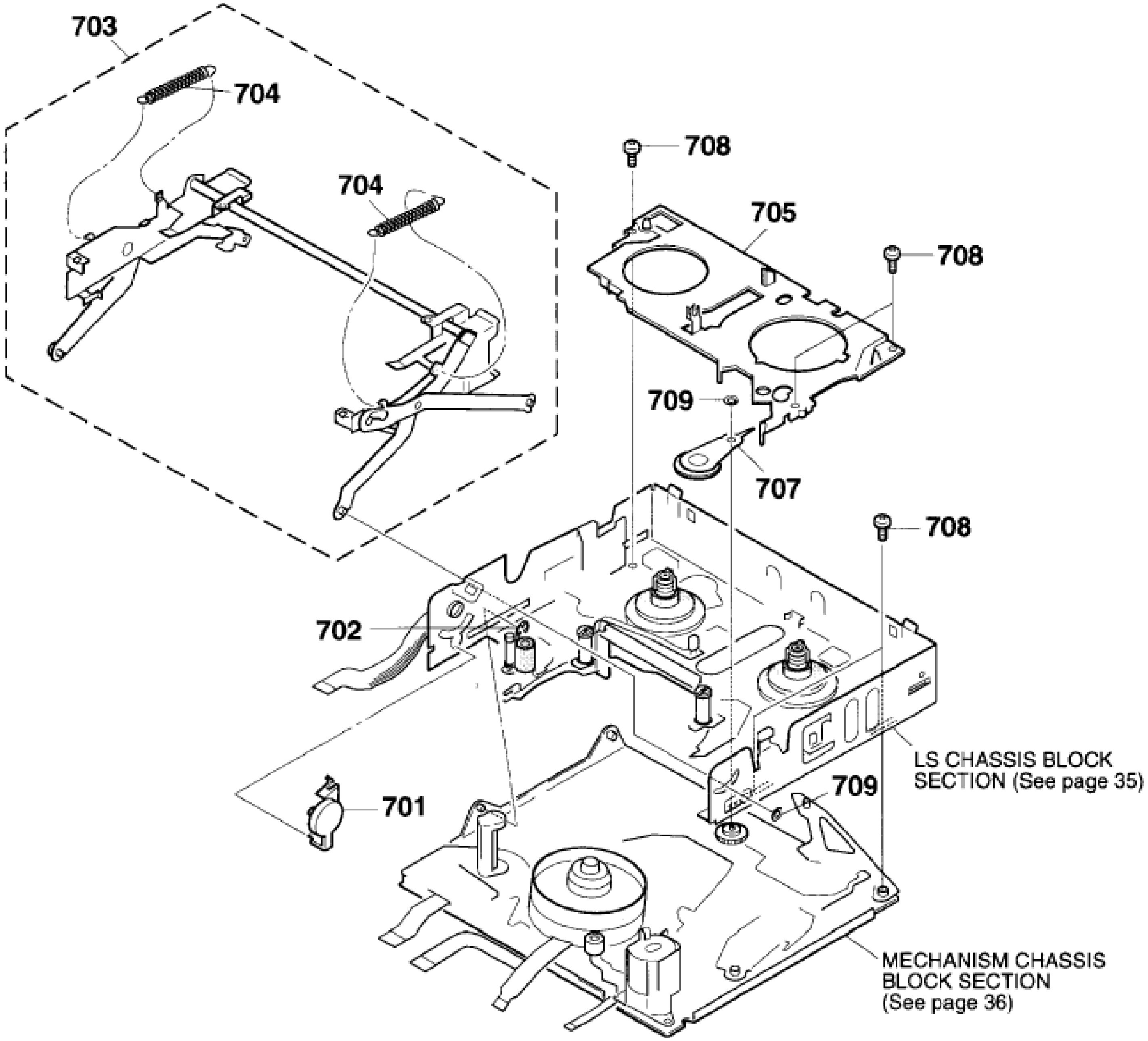


Fig. 35

5-1. Cassette Compartment Block Section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LS CHASSIS BLOCK SECTION (See page 35)
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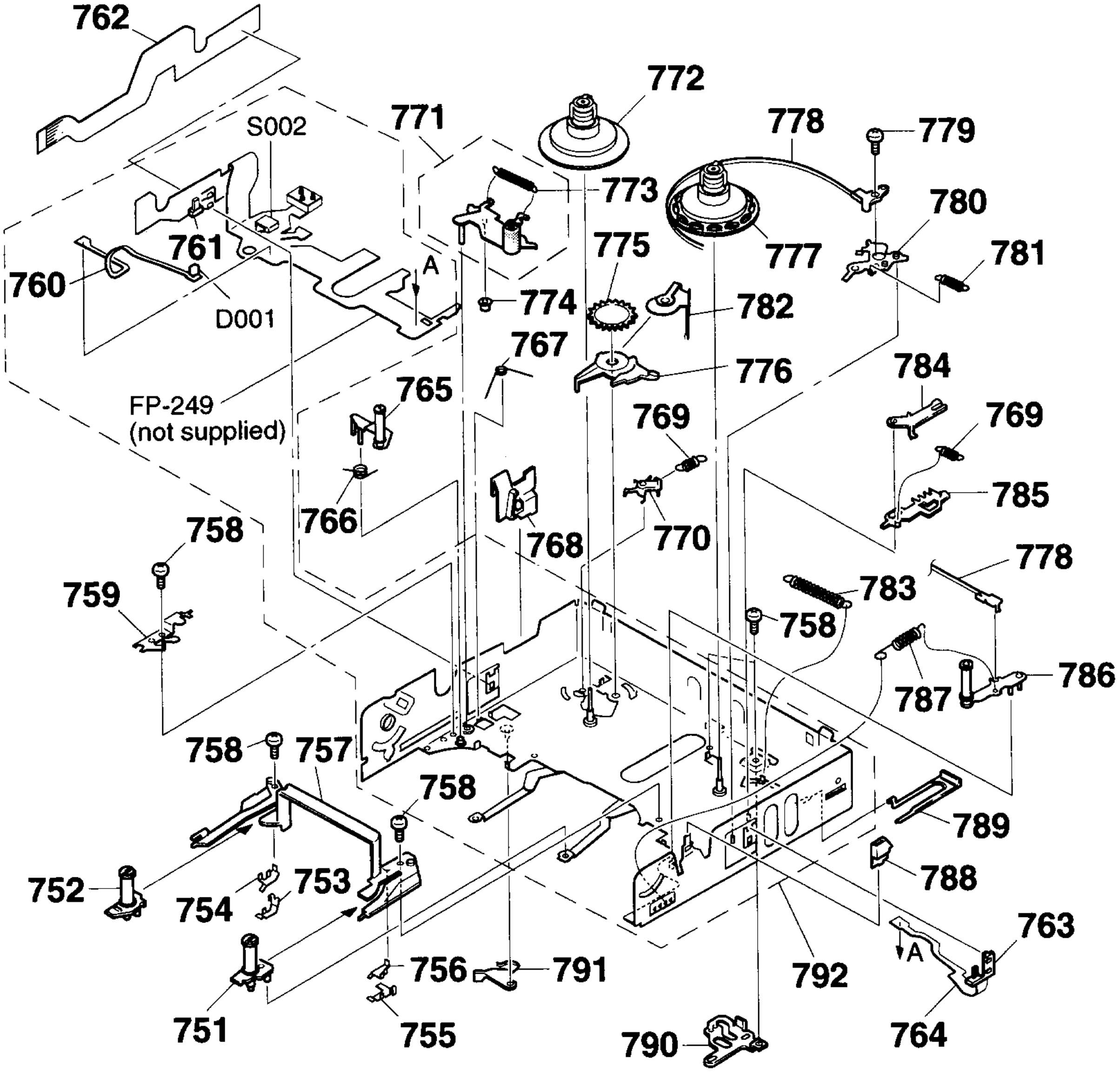
MECHANISM CHASSIS BLOCK SECTION (See page 36)

5-2. LS Chassis Block Section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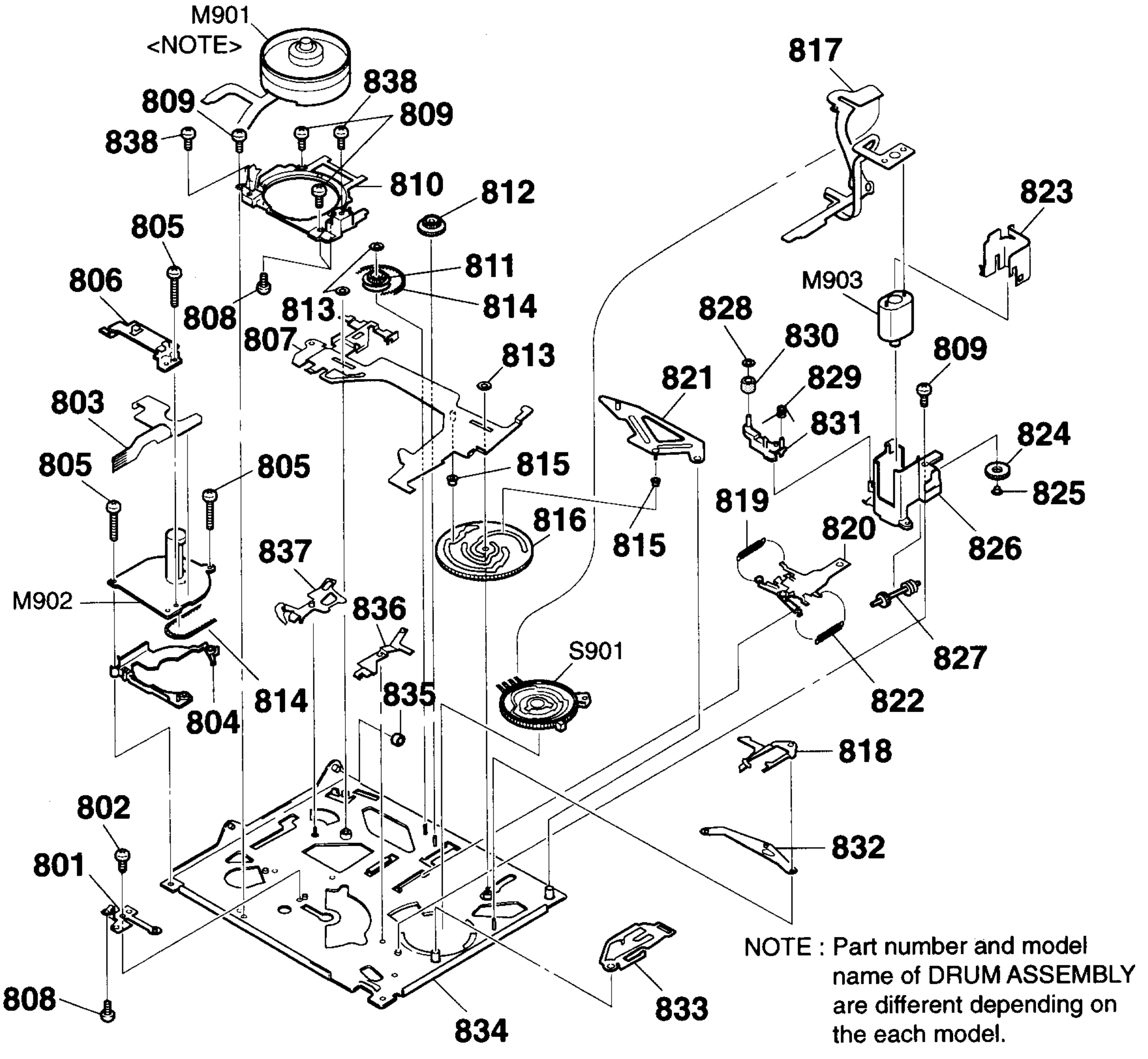
5-3. Mechanism Chassis Block Section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NOTE : Part number and model name of DRUM ASSEMBLY are different depending on the each model.